Elahi, A. (May 2019)

Doctor in Philosophy

Paranoia in the Community: A Social Identity Approach

Thesis submitted in accordance with the requirements of the University of Liverpool for the degree of Doctor in Philosophy

By

Anam Elahi

Primary Supervisor: Dr Ross White

Secondary Supervisor: Dr Jason McIntyre

Honorary Supervisor: Professor Richard Bentall

University of Liverpool

May 2019

Paranoia in the Community: A Social Identity Approach

Anam Elahi

Abstract

Individuals experience psychosis when their thoughts and emotions are so impaired that they lose touch with reality. Psychosis consists of many symptoms, of which paranoia is the most common. It is important to assess the structure of paranoia as, should paranoia exist on a continuum, examining paranoia in general population samples may inform interventions and preventative strategies for individuals who experience clinical levels of paranoia. Research has consistently shown that elevated rates of paranoia, and psychosis in general, are apparent in ethnic minority populations in Britain. Here, paranoia will be assessed in various community samples using the Social Identity Approach (SIA).

The SIA was developed to explain intergroup relations and consists of the Self-Categorisation Theory (SCT) and the Social Identity Theory (SIT). The SIT was recently posited to explain the higher rates of psychotic symptoms, such as paranoia, in immigrant and ethnic minority populations. It suggests that the elevated rates of mental illnesses in these groups are a result of social identity processes. As detailed in Chapter 1, many other explanations have been made to explain the high rates of psychotic symptoms in majority and minority populations. These will be discussed but the focus of Chapter 1 will be the SIA, in particular the SIT. The four empirical studies in my thesis examined the latent structure of paranoia and the relationship between social stressors, social identities and paranoia in majority and minority populations.

In Chapter 2, I synthesised research on the structure of paranoia and critiqued the methodology used in previous studies. In Chapter 3, using data from the general population, individuals with an at-risk mental state (ARMS) and individuals who had been clinically diagnosed, I assessed the latent structure of paranoia using up-to-date taxometric methods. My findings strongly supported previous research that paranoia is best represented by a continuum rather than a taxon.

In Chapter 4, I discussed the application of the SIA to explain levels of paranoia in the community. Specifically, I proposed that identifying with social groups can buffer people against paranoia that is associated with social stress. In Chapter 5, I

examined this suggestion in a general population sample. I investigated whether the relationship between financial stress and paranoia was mediated by self-esteem and whether neighbourhood identification moderated this relationship. I assessed the same relationship in students who moved away from home to attend university, specifically testing the protective value of their current host town identity and their previous hometown identity. My results suggested that strong neighbourhood identification protected people in the general population from paranoia associated with financial stress by furnishing them with self-esteem. The same effect was observed for students when they identified with their new host town but not their previous hometown. Thus, highlighting the importance of identifying with one's local community in order to mitigate the effects of stress on paranoia.

In Chapter 6, I applied the SIA to ethnic minority populations and discussed the role of negative social interactions (negative contact) in contributing to elevated rates of paranoia. Chapter 7 examined the relationship between negative contact with White British people and paranoia in an African-Caribbean sample and whether this relationship was moderated by British identification. Further, I examined whether the relationship was mediated by self-esteem and/or powerful others locus of control (LoC). The interactive relationship between negative contact and British identification on paranoia was mediated by LoC, but not self-esteem. Specifically, I found that increased negative contact predicted higher levels of paranoia through a stronger powerful others LoC, but only when British identification was strong.

In Chapter 8, the importance of perceived discrimination as a risk factor for paranoia and the use of implicit identity measures was outlined. Students who were born in England, and of Pakistani heritage, were recruited in Chapter 9. Their explicit and implicit Pakistani and English identities were tested as moderators of the effect of perceived discrimination on paranoia. Participants' implicit Pakistani identification moderated the relationship between perceived discrimination and paranoia, such that, high levels of perceived discrimination were associated with high levels of paranoia when implicit Pakistani identification was low. Interestingly, these results fit with the results from Chapter 7 where it was found that identifying with the group that was a source of negative contact (British identity) was associated with high levels of paranoia and in Chapter 9, it appears that identifying with the group that was not the source of perceived discrimination (implicit Pakistani identity) protected against paranoia.

In Chapter 10, I integrated and summarised the findings of my studies and examined how they build on previous research. Limitations of the studies were detailed, and clinical and policy implications were discussed. I suggested potential avenues for future research examining stressor-identity-paranoia relationships. Overall, my studies suggest that paranoia exists on a continuum, therefore, assessing paranoia in general population samples may inform interventions and preventative treatments for clinical paranoia. The studies highlight the importance of maintaining strong identification with groups that are meaningful and are a source of positivity, particularly identities associated with one's local community. However, identifying with the majority culture may be harmful when combined with adverse social experiences within that culture. The findings also emphasise the importance of positive majority-minority intergroup relationships in improving community mental health.

UNIVERSITY OF LIVERPOOL

DECLARATION

This thesis is the result of my own work. The material contained in the thesis has not been presented, nor is currently being presented, either wholly or in part for any other degree or qualification.

Signed ……  ……(candidate)

Date ……22/05/2019.……(candidate)

'*We're* the same, why can't *they* see that?'

By Adam McEvoy

This piece of art was commissioned for my thesis, with the aim of visually representing this body of work.

‘Britain is Bismillah’

Part of a spoken word poem by Suhaiymah Manzoor-Khan

...There are only a few things left that are Great in Great Britain.

And they are that Britain is Bismillah, basmati and bilingual,

Box braids and black barbers’ shops,

Bollywood and bhangra,

Body-popping outside the tube and Brick Lane before it was cool.

Britain is the burqa, Britain is praying in changing rooms,

Britain has its feet in your sink, Britain is your greatest nightmare,

Every repercussion you never thought through,

Britain is the mind to be got inside,

Britain is the terror to be counted.

I am the Great in Great Britain now,

And aren’t you terrified.

Acknowledgements

First, I would like to thank my supervisors, Dr Ross White for his knowledge, patience and incredible ability to remain calm, Dr Jason McIntyre for always making time for me, answering my stupid questions and helping me settle in and Professor Richard Bentall for all my Brexit knowledge! I am truly grateful to the three of you for your guidance, encouragement and support in getting me through this journey.

I would like to thank my fellow PhD students, especially Jenny Mithoo, Katerina Panagaki and Steph Heys (all soon to be Drs!). Jen for always being there, Katerina for organising my life with CLAHRC and Steph for dragging me through the write-up phase. Thank you to the CLAHRC team for not only providing me with this incredible opportunity but also for their continuous advice and support, particularly Anne Liu, Chris Deputy and Darren Charles for keeping their office door open and listening to me venting!

I would like to thank the NHS Drs and nurses and Julie Walshe who helped me immensely during these few years. I'd also like to extend my thanks to Dr Ben Ambridge and Professor Julian Pine who recommended I look into doing a PhD and Dr James Cruickshank for believing in me. I would like to acknowledge the individuals who volunteered to participate in my research, special thanks to Louise Flaherty and the Psychology team at N&CC and to the students there who shared their experiences with me.

My family and friends (particularly Aimes, who forced me to write this), I would like to thank them for their unconditional love, support and encouragement. Thank you for putting up with my frustration and mood swings whilst completing my PhD. Thank you for picking me up when I was at my lowest and believing in me. I hope I've made you proud.

Finally, thank you God. For everything.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to Paranoia

1.1 Abstract

The first aim of this review is to examine and explore psychosis rates across the world, as well as in Britain. My focus will be on assessing rates of psychosis in ethnic minority groups. In this review, I will also explore different explanations that have been proposed as causes of paranoia; including environmental, psychological and biological explanations. I will also examine literature that assesses the structure of paranoia. I will then assess The Social Identity Approach, which encompasses the Social Identity Theory and the Self-Categorisation Theory and research which has applied this approach to health benefits will be explored. I will link the approach to mental health issues and more specifically, to paranoia. This will be the third key aim within my review. My final aim is to assess the role of ethnic identities in the levels of paranoia of individuals from ethnic minority backgrounds. As well as reviewing literature, in this chapter I will also highlight what the remaining chapters of my thesis will examine.

1.2 Background

Paranoia is defined as "a mental condition characterised by delusions of persecution, unwarranted jealousy, or exaggerated self-importance, typically worked into an organised system. It may be an aspect of chronic personality disorder, of drug abuse, or of a serious condition such as schizophrenia in which an individual loses touch with reality" (Oxford Dictionary, 2019). The etymology of the Greek word 'paranoia' is para = beyond, beside; nous = mind.' Throughout my thesis, 'paranoid thoughts' and 'paranoid beliefs' will be used interchangeably to describe a more transient, fleeting and fragmented concept of paranoia in contrast to 'symptoms of paranoia' and 'delusions of paranoia' which will be used to describe clinical presentations of paranoia. Finally, 'paranoia' will be used to encompass an entire spectrum ranging from mild paranoid thoughts through to clinical levels of paranoia.

Paranoid thoughts are common in the general population (Freeman et al, 2005, Moutoussis, Williams, Dayan & Bentall, 2007) and clinical presentations of such thoughts are a central symptom of psychosis (Green et al., 2008). These paranoid thoughts and related behaviours tend to reflect everyday concerns, such as not trusting one's partner, feelings of being watched or fear of being deliberately harmed. Symptoms of paranoia can also be characterised by extreme beliefs such as multi-governmental spy networks, alien abductions, or mind control devices. When such beliefs become stressful or harmful to the individual or the community, there is a need to intervene.

For delusional disorders such as paranoia, antipsychotic drugs, antidepressants and mood-stabilising medications are often prescribed (Skelton, Khokhar & Thacker, 2015). There is evidence to support the effectiveness of antipsychotic drugs as a treatment for delusions. For example, a systematic review and meta-analysis by Leucht et al., (2012) concluded that patients with schizophrenia benefitted from maintaining antipsychotic drug treatment. However, D. Freeman and J. Freeman (2014) highlighted the downfalls of such treatment. They found that up to 50% of patients take their medication haphazardly or not at all six months after it was prescribed to them. This signifies a limitation in what is currently the most common form of treatment and emphasises the need to consider social factors as a cause for

delusions which can be treated using social interventions, rather than solely focusing on biological factors which are usually treated using drugs.

In this Chapter, I will define psychosis broadly and assess its' prevalence worldwide as well as in Britain. Ethnic differences in psychosis, in Britain, will also be highlighted. I will discuss the positive, negative and disorganised symptoms of psychosis, highlighting the positive symptom paranoia as the focus of my thesis. I will then explore the structure of paranoia, followed by suggested causes of paranoia; environmental, psychological and biological. As paranoia is often related to interpersonal themes, social judgements and evaluations, I will discuss the Social Identity Approach (SIA) and the Social Cure. I will then assess how parts of the SIA can be applied to mental health and more specifically, to paranoia. One type of social identity is ethnic identity, and I will discuss this in relation to paranoia. Finally, I will outline what the subsequent chapters of my thesis will explore.

1.2.1 Psychosis

Since the nineteenth century, there has been debate about the definition of psychosis. An impaired sense of reality is central and tested for when using two widely used classification systems; the Diagnostic Statistical Manual, Fifth Edition (DSM-5; American Psychiatric Association ((APA), 2013) and the International Statistical Manual for Mental Disorders, Tenth Revision (ICD-10; World Health Organisation (WHO), 1992). These manuals highlight the presence of numerous psychotic spectrum disorders. Due to the number of psychotic disorders, 'psychosis' is used as an umbrella term to capture a range of different mental disorders including schizophrenia and schizoaffective disorder. The validity and reliability of mental disorder diagnoses has been questioned (Bentall, Jackson & Pilgrim, 1988; Kendell & Jablensky, 2003). Therefore, it should be noted that psychotic illnesses may be referred to as 'schizophrenia' in my thesis when referring to studies that specifically assess schizophrenia diagnoses or incidence rates.

It has been suggested that approximately 1% of the global population experiences psychotic symptoms, although this figure is higher for an individual whose family member already suffers with a psychotic disorder (Yadav, Parle, Kadian & Sharma, 2015). *9It is also likely that the burden of mental disorders is

underestimated (Prince et al., 2007) as psychosis has been defined as one of the most costly, debilitating and complex illnesses (Yadav et al., 2015).

Indeed, the prevalence of psychotic symptoms has been found to fluctuate greatly worldwide (Nuevo, Chatterji, Verdes, Naidoo, Arango & Ayuso-Mateos, 2010). Nuevo and colleagues assessed representative samples from 52 countries who participated in a WHO World Health Survey (WHS), which aimed to investigate the cross-national prevalence of psychotic symptoms in the general population. Across all the countries, prevalence figures for at least one psychotic symptom varied from approximately 1% to 31%. However, as aforementioned, it is important to note that many of the studies focus on 'schizophrenia' (e.g. WHO, 1973, Saha, Chant, Welham & McGrath, 2005). Saha and colleagues conducted a meta-analysis and found that the incidence rate of psychosis was between 0.5-3% of the global population. Thus, illustrating that incidence rates of psychosis vary enormously according to the definition which has been applied by researchers.

Additionally, Jablensky et al. (1992) found the outcome of schizophrenia to be better in developing countries; suggesting that cross-cultural differences are not simply limited to prevalence. However, this WHO study of 10 countries also found that when a narrow definition of schizophrenia was imposed, no significant difference between the incidence rates of schizophrenia was apparent. Again, this suggests that the way in which we define and conceptualise psychotic disorders has a substantial effect on findings and subsequent research quality. Thus, one aim of the present thesis is to understand how psychotic symptomology, in this case paranoia, is structured in the population. The symptom paranoia, is the focus of my thesis because it is the most common symptom of psychosis and, as outlined below, a symptom which may be prevented and treated using social based interventions.

1.2.2 Psychosis in Britain and Ethnic Differences in Psychosis in Britain

Public Health England (2016) states that due to definition and data limitations, it is difficult to report a true count of people living with psychosis in Britain. The "Adult Psychiatric Morbidity Survey, 2014" (McManus, Bebbington, Jenkins, & Brugha, 2016) reports that this is because psychotic illnesses are likely to influence people's participation in research; particularly among vulnerable populations who are in prison, homeless or in temporary accommodation. Despite such difficulties, the

survey estimates the prevalence of psychotic disorders in England for those aged 16 years and above to be 0.7%. Due to this high estimate, it is unlikely that biological or psychological reasons can explain psychosis entirely, so it is important to also investigate social reasons for why psychosis rates in Britain are so high and how they can be treated over time.

In Britain, numerous studies have found elevated rates of psychosis in ethnic minority and immigrant populations (Van Os, Castle, Takei, Der & Murray, 1996; Bhugra, Leff, Mallett, Der, Corridan, & Rudge, 1997; Cantor-Graae & Selten, 2005; Fearon et al., 2006). A large-scale study conducted using a general population sample in England found similar ethnic differences in the presence of psychotic symptoms (King et al., 2005). For example, 12.1% of Black Caribbean subjects reported to suffering from at least 1 psychotic symptom. This was true of 9.9% of Pakistani participants, 8.7% of Indian participants but only 6% of White participants. In a study investigating the incidence rates of psychosis in London, researchers found that members of ethnic minority groups were more likely to develop a psychotic illness (King, Coker, Leavey, Hoare, & Johnson-Sabine, 1994). It was suggested that this rise in incidences of psychosis was due to the social and personal pressures of belonging to an ethnic minority group. The differences in the prevalence of psychosis between different ethnic groups also appears to extend to patients who are detained under the "Mental Health Act 1983" (2015). For example, Davies, Thornicroft, Leese, Higgingbotham and Phelan (1996) found that Black African and Black Caribbean patients were more likely to have been detained under the Act than any other ethnic group, clearly demonstrating further ethnic inequalities in mental health.

Like psychosis in general, paranoid schizophrenia is the most frequent diagnosis given to individuals from Black minority groups (Steinberg, Pardes, Bjork, & Sporty, 1977; Collins, Rickman, & Mathura, 1980; Toch, Adams, & Greene, 1987). Ndetei (1988) found that delusions of paranoia were associated more with African and West Indian immigrants in Britain in comparison to native populations due to cultural differences in the interpretation of anomalous experiences. This finding that symptoms of paranoia are higher in ethnic minority groups and potential causes for why this might be, will be explored in detail later in this chapter. However, it is important to note here that the current body of literature suggests that the nature and interpretation

of paranoid thinking patterns differs substantially between different ethnic groups and cultures.

1.2.3 Symptoms of Psychosis

The signs and symptoms of psychosis have been broadly classified into two main categories; positive and negative (Crow, 1980; Andreasen, 1982), which are still referred to in the ICD-10 and DSM-5 definitions of psychosis. In accordance with this dichotomy, the Scale for the Assessment of Negative Symptoms (SANS; Andreasen, 1983) and the Scale for the Assessment of Positive Symptoms (SAPS; Andreasen, 1984) were developed with the aim of categorising all psychotic symptoms as positive or negative; with positive symptoms adding something to an individual's experience (e.g. hallucinations) and negative symptoms taking something away from an individual's experience (e.g. lack of function). However, numerous studies have reported a third dimension: the disorganised dimension (Andreasen & Grove, 1986; Moscarelli et al., 1987; Miller, Arndt, & Andreasen, 1993; Lenzenweger, Dworkin & Wethington, 1989; Minas, Stuart, Klimidis, Jackson, Singh & Copolov, 1992; Brown & White, 1992; Peralta, De Leon & Cuesta, 1992). The disorganised dimension is characterised by symptoms such as disorganised thoughts and inappropriate emotional responses (e.g. laughing at a funeral).

In response to these debates, The Positive and Negative Syndrome Scale (PANSS) was developed (Kay, Fiszbein & Opler, 1987; Kay, Opler, & Lindenmayer, 1988, 1989), which has positive, negative and general psychopathology subscales. In a further evolution of the structure of psychosis, several studies favoured a five-factor solution (Dollfus, Petit, Lesieur, & Menard, 1991; Lindström & Knorring, 1993; Bell, Lysaker, Beam-Goulet, Milstein, & Lindenmayer, 1994; Marder, Davis & Chouinard, 1997; Lykouras et al., 2000; Mass, Schoemig, Hitschfeld, Wall, & Haasen, 2000). Shevlin, McElroy, Bentall, Reininghaus and Murphy (2016) found that bifactor models of psychosis best explained the structure of psychosis and that a general psychosis factor existed alongside five specific correlated factors (Reininghaus, Priebe & Bentall, 2012; Reininghaus et al., 2016). The aim of a bifactor model is to separate the variance between the general factor and a group of factors. The general factor influences the other variables. Despite these different models, most studies have agreed on the existence of disorganised symptoms, negative symptoms and positive symptoms.

Positive symptoms are of particular importance in my thesis and, as noted previously, they include experiences which are supplementary to an individual's normal functioning. As well as hallucinations, delusions are a further example of a positive symptom of psychosis. A delusion is defined as "an idiosyncratic belief or impression maintained despite being contradicted by reality or rational argument, typically as a symptom of a mental disorder" (Oxford Dictionary, 2019). Many different types of delusions exist, including: delusions of grandeur (believing you are superior to others), delusions of love (believing a celebrity or stranger loves you), delusions of jealousy (believing that your spouse or partner has been unfaithful) and delusions of paranoia (believing that you are being stalked, harassed or conspired against). Delusions of paranoia will be the focus of my thesis because they have been found to be the most common type of delusion, present in 35% of British patients who were experiencing delusions (Garety, Everitt & Hemsley, 1988).

1.3 The Structure of Paranoia

It has been suggested that delusions of paranoia have two essential properties. First, a belief that harm is occurring or will occur, and, second, that the harm is deliberately being caused by the perceived prosecutor (Freeman & Garety, 2000). Delusions of paranoia have been extensively researched (Bentall, Corcoran, Howard, Blackwood & Kinderman, 2001; Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002) and are the most common type of delusion; with approximately 90% of first episode schizophrenia spectrum patients reporting to suffer from such delusions (Moutoussis et al., 2007). This high prevalence figure is supported in cross-cultural studies examining patients with psychosis (Garety & Hemsley, 1987; Jørgensen & Jensen, 1994; Ndetei & Vadher, 1984; Stompe et al., 1999). Research on paranoia has focused on patients with schizophrenia, but paranoia is also evident in patients with depression (Haltenhof, Ulrich, & Blanenburg, 1999) and bipolar disorder (Goodwin & Jamison, 2007).

Research has suggested that psychosis exists in the general population and lies on a continuum with healthy functioning rather than being an all-or-nothing phenomenon (van Os, Hanssen, Bijl & Ravelli, 2000; Lawrie, Hall, McIntosh, Owens, & Johnstone, 2010). Despite such research, it is important to understand the structure of specific psychotic symptoms so that effective treatments can be implemented. In terms of paranoia, a hierarchy of paranoid thoughts has been suggested (Freeman et

al., 2005, Bebbington et al., 2013). The hierarchy posed by Freeman and colleagues spans from mild social evaluative concerns (e.g. fears of rejection) to more severe threats (e.g. fears that people are trying to cause significant psychological, physical or social harm). Whilst research investigating the structure of paranoia has been insightful, more comprehensive investigation is required. In my thesis, I will investigate the structure of paranoia in a diverse sample of participants, ranging from the general population to clinical patients. I will use taxometric methods (Meehl, 1995) which have been specifically designed to test for discontinuities in a dataset assessing a spectrum of psychopathology. A continuum understanding of paranoia would largely impact clinical practice. For example, it would allow clinicians to assess the psychological mechanisms individuals use to deal with low levels of paranoia and use this information to help treat those who present clinical levels of the symptom.

1.4 Causes of Paranoia

Reflecting the prominence of the biopsychosocial model of mental health, a range of explanations, that are not mutually exclusive, have been proposed as contributing to the emergence and maintenance of paranoia. These include environmental explanations (such as, urbanicity, social economic status and social networks and social support), psychological explanations (such as, an impaired Theory of Mind (ToM), jumping to conclusions bias, attributional bias, insecure attachment styles and two psychological models of paranoia (paranoia as a defence model and a non-defensive cognitive model of paranoia)) and biological explanations (such as the dopamine hypothesis). Below, I detail each of these explanations and discuss how they have been implicated in the emergence and manifestation of paranoia.

1.4.1 Environmental Explanations

1.4.1.1 Urbanicity

Gecici et al. (2010) suggest that the geographic residence of individuals is an important factor that influences the levels of paranoia that people experience. Epidemiological literature has reliably found psychosis rates to be higher in urban areas (McGrath, Saha, Welham, El Saadi, MacCauley & Chant, 2004; K. Sundquist, Frank & J. Sundquist, 2004; Krabbendam & van Os, 2005; Kelly et al., 2010). The association between psychosis and urbanicity has also been linked to paranoia in

particular (Johns et al., 2004; Freeman, McManus, Brugha, Meltzer, Jenkins, & Bebbington, 2011).

Supporting the importance of geographic residence in relation to psychosis further, it was found that participants' neighbourhood index of multiple deprivation (IMD) significantly predicted their psychosis; including levels of paranoia (Wickham, Taylor, Shevlin & Bentall, 2014). A lower IMD was more likely to be found in urban environments. However, a study by Oher and colleagues (2014) contradicted such findings as the researchers noted that no clear association was observed for delusions of paranoia and urban, densely populated neighbourhoods. It is not clear why support was not found in this study, but one possible reason may be due to the type of study conducted. The study by Wickham and colleagues was epidemiological (Adult Psychiatric Morbidity Survey; APMS) but the latter study utilised patient incidence rates which may not be entirely accurate.

Indeed, it is worth noting that in more populated areas where higher levels of competition exist, social defeat is more likely (Selten & Cantor-Graae, 2005). The concept of social defeat originates from animal studies and it refers to the loss of a confrontation or hostile dispute amongst any species, including humans. In both humans and animals, social defeat can cause high levels of stress and can significantly change the behaviour and health of those affected (Björkqvist, 2001; Rohde, 2001; Allen & Badcock, 2003). Selten and Cantor-Graae (2005) propose that this possible defeat contributes to the development of paranoia. However, it has been suggested that due to elevated levels of anxiety, individuals experiencing delusions of paranoia are less likely to go into busy environments (Ellett, Freeman & Garety, 2008). The anxiety triggered within such environments is likely to heighten delusions of paranoia as suggested by the claim that psychosis is a disorder of emotional dysregulation (Gumley & Schwannauer, 2006). Thus, urbanicity and paranoia are likely to cyclically reinforce each other, and symptoms are likely to be amplified if people remain in urban environments.

1.4.1.2 Socio-Economic Status

Another social determinant proposed to explain the aetiology of delusions of paranoia is low socio-economic status (SES). Research has indicated that there are a high number of individuals diagnosed with psychosis in disadvantaged areas (Croudace, Kayne, Jones & Harrison, 2000; Fone & Dunstan, 2006; Crump, K. Sundquist, J. Sundquist & Winkleby, 2011). A study by Kirkbride, Jones, Ullrich and

Coid (2012) found that an increased relative risk of paranoia was associated with disadvantage, whilst high SES was found to be protective for individuals who had a high genetic risk of paranoia (Wicks, Hjern & Dalman, 2010). Mirowsky and Ross (1983) found that low SES was linked to an external locus of control (LoC, feeling that events in one's life are controlled by external factors). A lack of control promotes mistrust and is directly linked to paranoia (Mirowsky & Ross, 1983; Ross, Mirowsky & Pribesh, 2001). Interestingly, research has also indicated that whilst deprivation predicted delusions of paranoia, it did not predict auditory verbal hallucinations (AVH), another positive symptom of psychosis (Wickham et al., 2014). Further support for the notion that symptoms of paranoia are associated with low SES was found from nationally representative data, which indicated that paranoia was associated with poverty (Freeman et al., 2011).

The Social Drift Theory (Perry, 1996) suggests that psychosis, and by inference paranoia, results in people drifting into areas with low SES rather than vice-versa. However, there is a substantial amount of evidence which excludes the social drift hypothesis as an account of the association between low SES and psychosis. For example, Lewis, David, Andréassson and Allebeck (1992) supported the social causation hypothesis which suggests that being brought up in an environment with low SES increased the risk of schizophrenia. Therefore, it appears that further research needs to be conducted to determine the direction of this association.

1.4.1.3 Social Networks and Social Support

Previous literature has suggested that social networks (Beels, Gutwirth, Berkeley & Struening, 1984) and social support (Thoits, 2011) can have a positive impact on an individual's mental health. This can be directly by increasing an individual's self-esteem, or indirectly by buffering against the negative effects of stress and trauma (Brugha, 2010). Individuals suffering from psychosis have been found to have small social networks and their social support is unlikely to extend beyond the realms of mental health services (Beels, 1981). Researchers have also found smaller (Erickson, Beiser, Iacono, Fleming & Lin, 1989; Macdonald, Hayes, & Baglioni, 2000) and less satisfying (Reininghaus et al., 2008) social networks amongst people suffering from first episode psychosis (FEP). The types of relationships within a social network are also thought to be important, with findings suggesting that, for

people with psychosis, friendships are more important than family relationships (Erickson et al., 1989; Macdonald et al., 2000).

However, conflicting with the above findings, it was found that when there are no differences in network sizes between participants experiencing FEP and control participants, the participants with FEP received significantly more social support (Horan, Subotnik, Snyder, & Nuechterlein, 2006). This suggests that people recognise that those suffering with mental health issues may need additional support. However, not all studies have found distinct differences between the social networks and social support of clinical patients and control groups. Macdonald et al. (2000) matched 26 individuals with early psychosis and 26 control participants who did not have mental health difficulties. The groups were matched for gender, age, level of education, employment and relationship status. No differences were found in the amount of perceived social support, number of family members, and number of acquaintances that participants had. It may be that reduced social networks are actually a consequence, rather than a cause, of psychosis as individuals with psychosis find it hard to develop and maintain relationships (Mueser, Tarrier & Dickerson, 1999). Overall, the evidence for social networks and social support being important in the development of psychosis is mixed. As no differences were found when participants were matched for potentially confounding variables, it seems that other social factors may also contribute to the emergence and maintenance of psychotic symptoms.

1.4.2 Psychological Explanations

1.4.2.1 Theory of Mind

Coined by Premack and Woodruff (1978), the term Theory of Mind (ToM) refers to the ability to make inferences about others' representational states and to predict their behaviour accordingly. Frith (1992) argued that people with an impaired ToM lack awareness or have less understanding about the thoughts and intentions of others. Individuals with an impaired ToM often maintain the ability to infer people's thoughts and intentions but these inferences are usually incorrect. Frith suggested that this impairment is linked to delusions of paranoia.

Some understanding of the actions and/or intentions of others is vital in the development of paranoid beliefs (Corcoran, Mercer & Frith, 1995). ToM is usually developed by children at the age of four or five (Wimmer and Perner, 1983; J. Flavell,

E. Flavell & Green, 1983) so a ToM deficit would most likely predate the development of paranoid beliefs. Studies have supported ToM deficits as an explanation for symptoms of paranoia in patients with schizophrenia (Corcoran, et al., 1995; Frith & Corcoran, 1996). Frith and Corcoran examined a group of participants with symptoms of psychosis (*N*=46) alongside a group of non-symptomatic controls (*N*=44). All the participants heard six fictional stories and were asked a question after each one; the answer of which depended on their ability to infer the mental state of one of the characters. The participants who were experiencing symptoms of paranoia displayed poor performance on questions involving the mental states of characters in the stories. Additionally, a meta-analysis showed significant ToM impairment in individuals that currently had schizophrenia as well as those in remission; further supporting the importance of a ToM deficit in the development of paranoia (Sprong, Schothorst, Vos, Hox, & Van Engeland, 2007).

However, not all studies have found support for the ToM hypothesis (Langdon Michie, Ward, McConaghy, Catts, & Coltheart, 1997; Sarfati, Hardy-Baylé, Besche, & Widlöcher, 1997). Indeed, it has been found that ToM deficits are more strongly associated with negative symptoms than positive symptoms, such as paranoia (Doody, Götz, Johnstone, Frith, & Owens, 1998; Mitchley, Barber, Gray, Brooks, & Livingston, 1998). Researchers have also questioned whether the ToM deficit hypothesis and evidence to support it simply defend the notion that patients with schizophrenia perform poorly on a variety of unusually demanding tasks (Garety & Freeman, 1999). The evidence for the hypothesis that an impaired ToM is linked to paranoia is inconsistent, so it is likely that other explanations also need to be considered.

1.4.2.2 Jumping to Conclusions Bias

Another proposed psychological correlate of paranoia and delusions in general is the jumping to conclusions bias (Garety, 1991; Garety & Hemsley, 1994). It has been suggested that patients with delusions tend to 'jump to conclusions' (make a decision about uncertain events) based on very little information. This bias has typically been tested and supported using experiments based on probability judgments. One variation of this is the 'beads task' (Huq, Garety & Hemsley, 1988) where participants were shown two jars with beads of two colours. The ratios of the beads were 85:15 and 15:85. A sequence of beads was then drawn, apparently from one of the jars, and participants were asked to guess which jar the sequence was from as soon

as they thought they knew the answer. It was found that participants who were experiencing delusions guessed the jar significantly sooner than participants who were not experiencing delusions (Peters, Day & Garety, 1997). Participants who were experiencing delusions were also found to be over-confident when estimating the probability of future events. Such findings were supported when similar methodology was adopted (e.g. Young & Bentall, 1997). Recent meta-analyses have also concluded that psychosis is associated with the jumping to conclusions bias (Dudley, Taylor, Wickham, & Hutton, 2015; McLean, Mattiske, & Balzan, 2017). However, contradicting the jumping to conclusions bias, participants experiencing delusions have been found to perform like control participants when a fixed number of trials was presented, and probability estimates were required (Huq et al., 1988; Peters et al., 1997). Whilst some evidence for the jumping to conclusions bias is evident, the studies focused on delusions in general rather than specific types of delusions, such as delusions of paranoia.

1.4.2.3 Attributional Bias

The attributional bias hypothesis suggests that individuals who present with delusions of paranoia construct these beliefs so that negative thoughts and/or actions (e.g. poor performance at work) can be attributed to external constructs (e.g. a malicious employer) as opposed to internal causes (e.g. the individual themselves having a lack of skill). Several studies suggest that this enables individuals to lessen the discrepancies between how they perceive themselves (actual self) and how they would like to be (ideal self) (Bentall, Kaney & Dewey, 1991; Bentall, Kinderman & Kaney, 1994; Kinderman & Bentall, 1996). Indeed, when assessed using the Attributional Style Questionnaire (ASQ; Peterson, Semmel, Von Baeyer, Abramson, Metalsky & Seligman, 1982), participants experiencing paranoia showed extreme self-serving biases. This meant that they attributed positive events to themselves and negative events to others. For negative events they were more likely to make stable (they cannot change the event) and global (the event will affect all areas of their lives) attributions (Kaney & Bentall, 1989).

Several studies have found support for the notion that individuals experiencing delusions of paranoia are more likely than participants with depression and non-clinical control groups to attribute negative events to external causes (Lyon, Kaney & Bentall, 1994; Fear, Sharp & Healy, 1996; Sharp, Fear & Healy, 1997). This bias is thought to protect individuals' self-esteem and is common in the general population

(Bentall, et al., 1994). It is important to note, however, that none of the above studies identified a bias for individuals with paranoid beliefs towards attributing positive events to internal causes (e.g. they performed well because of their own skills). Garety and Freeman (1999) criticise the studies that have investigated attributional biases as participants with delusions of paranoia are generally males diagnosed with schizophrenia whose symptoms of psychosis are usually unreported. However, given that negative events tend to have a greater impact on people than positive events (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001) and that delusions of paranoia are linked to low (Bentall et al., 2009; Freeman et al., 1998) and unstable (Thewissen, Bentall, Lecomte, van Os, & Myin-Germeys, 2008) self-esteem, it seems that paranoia is a response to threats to the self; as supported by a recent meta-analysis (Murphy, Bentall, Freeman, O'Rourke & Hutton, 2018).

1.4.2.4 Attachment Styles

Attachments styles are concerned with the emotional bond between a child and their primary caregiver. According to Bowlby (1969, 1973), this bond is central in shaping many aspects of a person's life, including interpersonal relationships, psychological functioning and the development of the ToM. Four types of attachment styles have been proposed: secure, anxious, avoidant and fearful. The latter three are insecure attachment styles which are usually caused due to adverse or threatening events (such as, being raised in a children's home). Levels of paranoia have been shown to be elevated in people with insecure attachment styles relative to those exhibiting a secure attachment style (Berry, Wearden, Barrowclough, & Liversidge., 2006; MacBeth, Schwannauer & Gumley, 2008). Specifically, after adjusting for overall symptom severity, Berry, Barrowclough and Wearden (2008) found that avoidant attachment styles were strongly associated with higher levels of paranoia. Attachment anxiety and hearing 'threats' were also found to be positively correlated in clinical patients who suffered from auditory verbal hallucinations (AVH; Berry, Wearden, Barrowclough, Oakland, & Bradley, 2012).

Sitko, Bentall, Shevlin, and Sellwood (2014) demonstrated that anxious and avoidant styles of attachment fully mediated the association between experiencing childhood neglect and paranoia, suggesting that forming secure attachments in childhood is important for developing healthy relationships in adulthood and for reducing paranoid thoughts and beliefs. Research has also suggested that events which disrupt attachment may be particularly important in the development of symptoms of

paranoia and one's sense of self (Bentall et al., 2014). For example, insecure attachment styles were found to predict levels of paranoia, but not hallucinations; with negative self-esteem mediating the association between attachment style and paranoia (Wickham, Sitko & Bentall, 2015). However, the association between insecure attachment styles and paranoia has not always been held (MacBeth, Gumley, Schwannauer & Fisher, 2011). MacBeth and colleagues found that attachment styles were unrelated to psychotic symptoms. However, there is methodological flaws within the design of this study. The study adopts a cross-sectional design where only 34 individuals with a first episode of psychosis were interviewed using the Adult Attachment Interview (AAI); obtaining different results to the other studies.

Additionally, the specificity of attachment styles for paranoia is considered controversial by some (Berry et al., 2006) but the evidence from patient samples, epidemiological samples and even prisoners suggests that it shouldn't be (Shevlin, McAnee, Bentall & Murphy, 2015). The main problem seems to be that most studies either do not look at symptom-specificity or do not use statistics which control for comorbidity. Overall, despite some conflicting evidence, it appears that there is strong evidence for attachment styles being important in the development of psychotic symptoms.

1.4.2.5 Paranoia as a Defence Model

An influential psychological model which aims to explain delusions of paranoia is the Paranoia as a Defence Model (Bentall et al., 1994). This model proposed that an externalising attributional style minimises the accessibility of negative self-schemas at the expense of generating paranoid beliefs. Therefore, according to this model, delusions of paranoia are a self-preservation response to threats to an individual's self-esteem. In this view, it appears that delusions of paranoia are designed to protect an individual's self-esteem. For example, a negative event occurs, e.g. failing an exam which is a threat to an individual's self-esteem, so the individual looks to blame others for the occurrence of the event. This results in the individual having reduced negative thoughts about themselves but increased levels of paranoia.

However, this model was later updated and named the Attribution-Self-Representation Cycle Model (Bentall et al., 2001). Bentall and colleagues noted that

the relationship between attributions and self-esteem is not linear. Therefore, they proposed a cyclical relationship between attributions and self-esteem. This model suggests that an event happens, then an individual makes an attribution for the event, this attribution feeds back into the way that an individual perceives themselves. Finally, how the individual perceives themselves effects what kind of attribution they make for the next negative event and so on. Therefore, levels of paranoia increase as individuals blame others for negative events which increases their own self-esteem. This makes people more likely to continue to blame others for subsequent negative events, thus, leading to a continual increase in their self-esteem. Negative events occur very often so if this attributional model is followed, and people continually blame others for their misfortunes, it can be seen how this process will increase levels of paranoia.

A study found that paranoia was associated with low self-esteem (Thewissen et al., 2008) and that this effect survived when depression was controlled for but not when the instability of self-esteem was controlled for. Crucially, paranoia was found to be independently related to self-esteem stability and when controlling for the instability of self-esteem, the effect between self-esteem and paranoia weakened. Therefore, it seems that it is not necessarily that people who present with symptoms of paranoia have lower self-esteem but that their self-esteem is unstable. A recent meta-analysis tested the key predictions of the defensive account of persecutory delusions. Overall, support was found for the predictions made by both versions of this model which suggest that symptoms of paranoia are associated with an externalising attributional bias which helps individuals to maintain high levels of self-esteem (Murphy et al., 2018).

1.4.2.6 A Non-Defensive Cognitive Model of Paranoia

An alternative, also highly influential, model was proposed to explain the emergence of symptoms of paranoia. Freeman and colleagues (2002) argued that paranoia arises directly from a combination of cognitive biases and anomalous experiences, which provoke a search for meaning. Therefore, delusions of paranoia arise when an individual is trying to make sense of perceived unusual experiences. For example, when an individual is trying to make sense of why they are being laughed at.

In their attributional model, Freeman and colleagues argue that self-esteem is low in individuals with paranoia. However, results have been found which conflicted with this notion that self-esteem is particularly low in patients with paranoia (Bentall et al., 2008). The sample consisted of patients who had schizophrenia and paranoia (*N*=38), people who were in remission after schizophrenia (*N*=27), patients with depression and paranoia (*N*=18), non-psychotic individuals who experienced delusions of paranoia (*N*=27) and control participants (*N*=33). It was found that in patients with schizophrenia and paranoia, negative self-esteem was higher than it was in the control participants. However, it was lower than the self-esteem levels in patients with depression and paranoia. Therefore, it appears that not everyone with paranoia has particularly low self-esteem. On the other hand, there have been several studies which have supported this model (Candido & Romney, 1990; Fear, et al., 1996). There have been findings which have partially supported the model (Martin & Penn, 2002; McKay, Langdon & Coltheart, 2005) and findings which have completely failed to find support for Freeman's model (Humphreys & Barrowclough, 2006).

Due to discrepancies in findings, it may be plausible to suggest that self-esteem is unstable, not necessarily low, in individuals with paranoia as suggested previously in the study by Thewissen et al., (2008). The importance of the instability of self-esteem may also help to explain why studies exploring Freeman's model sometimes found strong support, sometimes partial support and sometimes no support for the low self-esteem hypothesis.

1.4.3 Biological Explanation

1.4.3.1 Dopamine Hypothesis

Using modern imaging techniques, biological researchers have successfully identified brain areas that correlate with symptoms of psychosis (David, 1999; Kircher & Thienel, 2005). Positive symptoms in particular have been linked to changes in the mesolimbic dopamine pathway (Stahl, 2004). It has been argued that when an imbalance of neurotransmitters, such as dopamine, occurs individuals experience an interference between messages that nerve cells in the brain send to one another, which in turn leads to delusions amongst other symptoms. The role of dopamine is to promote the salience of stimuli and focus an individual's attention on it (Berridge & Robinson, 1998). A person can thus attach value to the stimuli and prepare a response

accordingly. If an imbalance of dopamine causes dopamine to be released into the mesolimbic pathway at random moments, a large amount of importance may be attributed to trivial information (Blackwood, Bentall, Ffytche, Simmons, Murray & Howard, 2004).

Studies have supported the hypothesis that elevated levels of dopamine are present in patients with delusions; most notably patients with schizophrenia (Breier et al., 1997; Abi-Dargham et al., 1998; Abi-Dargham, 2004). However, a review by Howes and Kapur (2009) elaborated on the basic dopamine hypothesis and suggested a final common pathway instead. Their account proposes that numerous environmental and genetic factors interact and funnel into a single biological pathway. In other words, it is equally plausible that environmental factors influence the neurochemistry of the brain, which leads to psychotic symptoms. Howes and colleagues (2012) also conducted a meta-analysis and concluded that most dopaminergic abnormalities in patients with schizophrenia were presynaptic. Therefore, drug treatments which act at the level of dopamine receptors, fail to treat these presynaptic abnormalities.

More recently, a review linked dopamine abnormalities to paranoia and social adversities (Howes & Murray, 2014). It was noted that social adversity causes biases in cognitive schemas which individuals use to interpret their experiences of paranoid thoughts. This causes stress which results in dysregulated releases of dopamine. In turn, the salience of stimuli is misattributed and then misinterpreted by the biased schemas. Paranoia which then results from this process causes further dopamine dysregulation and confirms these paranoid beliefs. Despite some recent recognition of social factors, historically, social factors have been comparatively neglected relative to biological explanations for symptoms of psychosis (Bentall, 2004). However, existing literature suggests that social and psychological factors are critical in the emergence of psychotic symptoms, such as paranoia.

1.5 The Social Identity Approach

An increasing amount of literature has attempted to explain mental illnesses using the Social Identity Approach (SIA). The SIA consists of two related but distinct theories (Haslam, 2004; Postmes & Branscombe, 2010), specifically: the Social Identity Theory (SIT: Tajfel & Turner, 1979) and the Self-Categorisation Theory

(SCT: Turner, Hogg, Oakes, Reicher & Wetherell, 1987; Turner, Oakes, Haslam, & McGarty, 1994). The SIT emphasises intergroup processes and describes how identifying with groups leads to and maintains differences in attitudes and behaviours towards ingroups ('us') and outgroups ('them'). On the other hand, the SCT details the processes that occur when individuals sort themselves into categories. According to the SCT, people categorise themselves at three different levels. These levels are: *superordinate* which is the broadest level (e.g. human), *intermediate* which involves categorising one-self at a social level (e.g. the football team someone supports) and *subordinate* which is a personal categorisation (e.g. extrovert). In the present context, the *intermediate* level, which can be broken down into finer gradients (Hornsey & Hogg, 2000), is of particular importance as this is the level that produces 'us' and 'them' distinctions. Categories can change over time and become more or less salient. For example, if an individual moves home from Liverpool to London, the saliency of their Liverpool identity is likely to decrease whilst their London identity will increase in its' salience. Turner et al. (1987) described this relationship between identities as *functional antagonism*.

As the saliency of identities changes, an 'us' and 'them' attitude arises with individuals categorising their group as the ingroup and others as belonging to the outgroup. Several studies have shown that people have a preference for their ingroup, even when the rewards being offered for favouritism are meaningless and the categories are arbitrary (Tajfel, 1970; Tajfel, Billig, Bundy & Flament, 1971; Cialdini, Borden, Thorne, Walker, Freeman, & Sloan, 1976; Rubin, Paolini & Crisp, 2010). Thus, people appear to categorise themselves into social groups with ease and then show strong preferences for their own category. It is becoming increasingly apparent that there may be several benefits that arise from these social identification processes.

1.5.1 The Social Cure

Despite the SIA originally being developed to inform research on intergroup relations (e.g. prejudice and discrimination), the theory has more recently been applied to health behaviours and outcomes. This model has been coined The Social Cure (S. Haslam, Jetten, Postmes & C. Haslam, 2009; Jetten, Haslam, & Alexander, 2012). Proponents of this perspective argue that people's social identities, which they derive from the groups to which they belong, impact their health and well-being by buffering against the negative effects of stress. Indeed, it has been found that group memberships

improve the health of individual members because groups bolster self-esteem, belonging, personal control, provide a sense of meaning and a sense of purpose (Cruwys, S. Haslam, Dingle, C. Haslam, & Jetten, 2014; Greenaway, Haslam, Branscombe, Cruwys, Ysseldyk, & Heldreth., 2015). It is important to note, however, that groups only provide this function, when they have a positive impact on group members. For example, the identity of a substance user is harmful, but a recovering identity would have a more positive impact on an individual (Dingle, Stark, Cruwys & Best, 2014).

1.6 Social Identity and Mental Health

The Social Identity Approach (SIA) has been applied to mental health symptoms such as depression and anxiety (Cruwys et al., 2014; Cruwys, Dingle, C. Haslam, S. Haslam, Jetten, & Morton, 2013; Cruwys, South, Greenaway, & Haslam, 2015). This research illustrates that interventions designed to improve and enhance an individuals' sense of identity can improve their overall well-being and mental functioning (Knight, S. Haslam & C. Haslam, 2010). A recent psychological intervention called Groups 4 Health (G4H) was designed to target the emergence and maintenance of social group relationships. It was found to significantly improve mental health and general well-being on completion of the program and at a six-month follow-up (C. Haslam, Cruwys, S. Haslam, Dingle & Chang, 2016). Similarly, an online self-help group, created for dementia sufferers, was found to help them overcome a sense of uncertainty and improved their well-being (Clare, Rowlands & Quin, 2008).

Further evidence of the SIA being implicated in mental health can be seen when individuals lose their identity. For example, when individuals lost their social identity due to a work team restructure, their mental health and well-being was negatively impacted (see Jetten, O'Brien, & Trindall, 2002). Social identities could be lost for many reasons, such as retirement or an illness, thus the effects of these identities on health are likely to be bi-directional. As Putnam (2001) concluded in his book, *Bowling Alone*, people are not only more likely to participate in group activities when they are well but are also more likely to be well because they participate in such group activities.

Existing literature demonstrates a negative association between social identification and depressive symptoms. This relationship has been reliably found

across varied populations (Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005; Bizumic, Reynolds, Turner, Bromhead, & Subasic, 2009; Sani, Magrin, Scrignaro, & McCollum, 2010; Cameron, 1999; Branscombe, Schmitt, & Harvey, 1999; Gleibs, C. Haslam, Jones, S. Haslam, McNeil & Connolly, 2011). It is also the case that individuals who have a greater number of social identities are less likely to develop depression during life events that usually pose a threat to their well-being (Iyer, Jetten, Tsivrikos, Postmes, & Haslam, 2009; Jones, Haslam, Jetten, Williams, Morris & Saroyan, 2011). In a large-scale epidemiological study, Cruwys and colleagues (2013) found that the number of social groups an individual belonged to was a strong predictor of their subsequent depression levels; with the effect being three times greater among participants with a history of depression. Interventions designed to increase social identification have also demonstrated reduced reports of depression (Gleibs et al., 2011; C. Haslam, S. Haslam, Jetten, Bevins, Ravenscroft & Tonks, 2010).

Additionally, in a sample of females over the age of 18 who reported high levels of social identification, trait anxiety was found to negatively correlate with social connectedness (Lee & Robbins, 1998). Further support of the link between anxiety and social identities was found in the G4H study (Haslam et al., 2016). Participants demonstrated improvements in their anxiety levels on completion of the program and after six months. According to Haslam and colleagues, this improvement was due to participants identifying with the G4H group as well as other groups.

1.6.1 Social Identity and Paranoia

There has been some research, albeit limited, that supports the link between social identification and paranoia. A theoretical account by McIntyre, Elahi and Bentall (2016) suggested that strong social identification can reduce paranoia through several social and psychological pathways. In one large-scale study, with two different sample groups, the relationship between paranoia and social identities was tested, as was the mediating role of self-esteem. Results illustrated that social identities, in this case 'neighbourhood' and 'friendship group' identification, reduced paranoia by increasing people's self-esteem (McIntyre, Wickham, Barr & Bentall, 2017). Further to this, a cross-sectional study and a longitudinal study found a negative relationship between family identification and paranoia which was held over time (Sani, Wakefield, Herrera & Zeybek, 2017). Another study which has examined the relationship between social identities and paranoia found a similar relationship

between ethnic identification and paranoia (Thomas, Bentall, Hadden & O'Hara, 2017). The study tested the American and Emirati identity of female university students in the United Arab Emirates (UAE); identity was tested explicitly and implicitly. In this study, implicit Emirati identification (ingroup preference) was associated with lower levels of paranoia, whereas, implicit American identification (outgroup preference), was associated with higher levels of paranoia.

Despite this limited research supporting the link between social identification and paranoia, there is a considerable overlap between the factors that are enhanced by social identification and the risks for developing symptoms of paranoia. For example, Fowler and colleagues (2011) found that the maintenance of symptoms of paranoia was predicted over time by low self-esteem, whilst Jetten et al. (2015) established that possessing multiple social identities protected against low self-esteem. In sum, low self-esteem appears to be an important risk factor for the development of paranoid thoughts, but it can be increased through the maintenance of meaningful social identities.

The role of locus of control (LoC) in mental health and in social identification further supports a potential link between paranoia and social identification. Greenaway et al. (2015) suggest that social identification promotes an internal LoC and subsequent better mental health. An internal LoC suggests that people feel in control over the events that occur in their own life. Given that self-control and possessing an external LoC are associated with higher levels of paranoia, and that social identification bolsters self-esteem and promotes an internal LoC, it seems logical that strong social identification should reduce people's risk of developing delusions of paranoia via these psychological mechanisms.

1.6.2 Paranoia and Ethnic Identity

As previously mentioned in this chapter, research has reported an elevated risk for all psychotic illnesses amongst ethnic minority groups (King et al., 1994). In Britain, incidence rates of psychosis were found to be higher in ethnic minority groups compared to White Britons: African-Caribbeans (6.7 times greater), Black Africans (4.1 times greater) and Asians (1.5 times greater (Fearon et al., 2006)). Bhugra et al., (1997) also found higher rates of schizophrenia diagnoses among African American (Van Os et al., 1996) and Asian participants in comparison to White participants. Ethnic minority groups may have an increased risk of developing psychotic illnesses due to a family history of migration, which has been found to be an important risk

factor in schizophrenia (Cantor-Graae & Selten, 2005). It appears that elevated rates of psychosis are evident in ethnic minority groups (potentially 2nd, 3rd or 4th generation immigrants) as well as in immigrant populations (1st generation immigrants).

Despite a focus on psychosis in general, symptoms of paranoia have also been found to be more prevalent in immigrant groups (Eitinger, 1959; Hitch & Rack, 1980; Westermeyer, 1989). Several explanations for these higher rates of mental illnesses amongst immigrant and ethnic minority groups have been proposed (see Kirkbride et al., 2008; Morgan, Charalambides, Hutchinson, & Murray, 2010). Ødegaard (1932) first presented the idea of selective migration, which suggests that individuals who are at a higher risk of developing mental illnesses are more likely to migrate. However, Lundberg, Cantor-Graae, Kahima and Östergren (2007) investigated this theory using potential future immigrants in Uganda. No differences in psychosis-like experiences and mania were found between those actively planning to migrate and those with no intention to migrate. However, a potential weakness of such studies is that not all those planning to migrate actually did. This makes it incredibly difficult to assess individuals' mental health before migration.

Some researchers have argued that schizophrenia and other psychotic illnesses are heritable (Sharpley, Hutchinson, Murray & McKenzie, 2001; Selten, Cantor-Graae, Slaets & Kahn, 2002; Lundberg et al., 2007). However, there is no robust evidence that high rates of psychosis are due to a genetic risk in ethnic minority and immigrant populations. For example, in Britain, the risk of schizophrenia has been examined in the relatives of individuals who have been diagnosed with schizophrenia. Individuals from both White and Black Caribbean groups were assessed (Sugarman & Craufurd, 1994; Hutchinson et al., 1996). Both these studies reported no differences in the risk of schizophrenia between the groups. This suggests that there is a similar genetic risk of schizophrenia in groups of different ethnic backgrounds.

Low socio-economic status amongst immigrant and ethnic minority groups has also been suggested as an explanation for the higher rates of psychosis (Fone & Dunstan, 2006). However, a two-year population-based study in East London which assessed 18-64 year olds with a first episode of psychosis (FEP), concluded that the elevated rates of psychosis among ethnic minorities could not be explained by socio-economic statuses (Kirkbride et al., 2008). Despite a lack of evidence for these

proposed explanations, there is substantial support for the role of social identities in the elevated rates of psychosis in minority populations (McIntyre et al., 2016).

In these populations, it has been proposed that ethnic density relates to mental health. The '*ethnic density effect*' refers to the notion that in areas where a low number of ethnic minority people reside, there are higher rates of psychosis among those minority groups (Halpern & Nazroo, 2000). Boydell et al. (2001) assessed fifteen electoral wards in South London. It was found that the incidence of schizophrenia in ethnic minority groups was greater when they comprised a smaller proportion of their surrounding population. This is evident in research that demonstrates a high risk of psychosis in immigrant groups (Harrison, Owens, Holton, Neilson, & Boot, 1988), particularly when they reside in isolation from other immigrants. Additional evidence for this hypothesis has been provided by Veling, Susser, Van Os, Mackenbach, Selten and Hoek (2008) who found that elevated rates of psychosis in ethnic minority groups were only apparent in Dutch neighbourhoods that were low in ethnic densities. When people lived in neighbourhoods with a large proportion of others from their own ethnic group, their psychosis rates were not statistically different from White Dutch natives. Similar results were also found in a study conducted in London (Schofield, Ashworth & Jones, 2011), which found that there were no differences in the incidence rates of psychosis in African-Caribbean individuals compared to White British individuals when Black people comprised more than 25% of the neighbourhood.

For people that have migrated, it may be that contending with processes of acculturation might contribute to psychosis. Even though people migrate for different reasons, it is a time often characterised by stress and anxiety. It has been suggested that moving between different cultures leads to acculturation which refers to psychological and cultural changes that result in one of four strategies: integration, assimilation, separation and marginalisation (Berry & Kim, 1988). Integration refers to an individual maintaining their old cultural identity whilst also forming and maintaining a new cultural identity. This type of acculturation strategy is argued to be the most helpful for immigrants' social adjustment and mental health (Berry, Kim, Minde, & Mok, 1987; Berry, 1999). Assimilation refers to an individual embracing their new culture whilst disidentifying with their original culture. Separation occurs when an individual rejects their new culture but maintains their original culture. The

final strategy, marginalisation, occurs when both the original and new culture are rejected by an individual.

Berry and Kim suggest that marginalisation is the most stressful acculturation strategy. This was supported in a study conducted on a sample of Asian-American student immigrants; the students most at risk of mental health symptoms were those who reported to feeling trapped between the two cultures (Yeh, 2003). Additionally, second-generation Greek-Canadians (Sands & Berry, 2009) and Korean-Canadians (Berry et al., 1987) reported worse mental health symptoms when they did not identify with their original *or* their new culture. This is in-line with social identity research, which suggests that belonging to more social groups promotes better mental health (Cruwys et al., 2013).

The Social Identity Model of Identity Change (SIMIC; Jetten & Pachana, 2012) suggests that positive social relationships can limit the negative impact of life transitions, such as migration, on health and well-being (Haslam et al., 2009). According to this model, forming new social relationships after life transitions can protect individuals from the negative effects caused by identity loss (Jetten et al., 2012). C. Haslam, Holme, S. Haslam, Iyer, Jetten, and Williams (2008) found that by joining and maintaining contact with social groups after life transitioning events, participants' life satisfaction improved. Therefore, social identification may be an important protective factor against symptoms of psychosis, such as paranoia among ethnic minority and immigrant populations.

1.7 The Present Research

In my thesis, I investigate the role of social identification in the manifestation and development of paranoia and test the utility of this approach in reducing the risk of paranoia amongst ethnic minority groups. Chapter 2 will delve further into examining literature which suggests that symptoms of paranoia exist on a continuum. I will highlight methodological improvements that can be made to further test the structure of paranoia. Next, I will investigate the structure of paranoia, which will elucidate whether paranoia can be studied in varied populations and not just in clinical settings (Chapter 3). Specifically, I will use taxometric methods to determine whether paranoia is best represented by a continuum (i.e. a single distribution) or a taxon (i.e. separate groups of people dependent on paranoia severity, with clinical patients experiencing delusions in the most severe group). The findings will also indicate whether sub-clinical paranoia is likely to emerge from the same social and

psychological processes as severe delusions of paranoia, which will be critical for subsequent studies investigating social identification and paranoia.

In Chapter 4, I will discuss the Social Identity Theory in more detail and examine its' application to paranoia. This will allow me to assess the role of social identities in both a general population and a student sample in Chapter 5. These studies will determine whether identifying with one's local neighbourhood is protective against paranoia, and whether identifying with participants' hometown or host town (where they have moved to) is more beneficial for students who have moved location to attend university. I will also examine whether this relationship is mediated by an individual's self-esteem. I will hypothesise that individuals who identify strongly with their neighbourhood will display lower symptoms of paranoia and this relationship would be mediated by their self-esteem. However, in terms of the student population, it may be that students need to identify with both their home and host town in order to experience lower levels of paranoia; in line with the acculturation strategy hypotheses.

Chapter 6 will examine how ethnic identification may contribute to levels of paranoia in ethnic minority groups and I will discuss the importance of contact between minority and majority groups in the manifestation of paranoia. In Chapter 7, I will assess the levels of negative contact that individuals of African-Caribbean heritage in Britain experience with the majority White population and how this negative contact impacts their levels of paranoia. I will also assess participants' levels of British identification and test whether this moderates the relationship between negative contact and paranoia. Two psychological mechanisms (self-esteem and powerful others LOC) will be tested as mediators of this relationship. I will hypothesise that individuals who strongly identify with Britain will display lower levels of paranoia so long as they maintain low levels of negative contact with the White majority population. I will further hypothesise that this relationship will be mediated by self-esteem and powerful others LOC.

In Chapter 8, I will highlight the importance of discrimination and perceived discrimination against ethnic minority groups in terms of how this impacts their mental health. The importance of explicit ethnic identities, as well as implicit ethnic identities will be examined and the difference between British and English identities will also be noted. In Chapter 9, I will assess the role of ethnic identity in the levels of paranoia of another minority population, students of Pakistani heritage, born in England. The students attend a college in a highly ethnically dense area. I will assess participants'

English and Pakistani identification (both explicitly and implicitly) alongside their levels of paranoia. I will hypothesise that to exhibit lower levels of paranoia, students must experience low levels of perceived discrimination and strongly identify, both explicitly and implicitly, with their Pakistani ethnicity due to the ethnically dense area they reside in.

Finally, in Chapter 10, I will summarise the results of the studies, draw clinical and policy implications, identify limitations of the research and make recommendations for potential further research. I will suggest that this research is important for clinicians, service users and the public as there is potential for it to be applied to many different contexts involving identity loss, identity transition, and community cohesion. Mental health practitioners may be able to better support people experiencing paranoia by helping them to join and identify with different social groups. For ethnic minority groups and immigrants, this research could help policy makers better understand the social and psychological barriers faced by people who are migrating to, or seeking asylum in, Britain. This could, in turn, reduce the impact of mental illnesses on clinical services. My findings will also have implications for the Social Cure Model of mental health and theorising on the psychology of group memberships. Understanding the importance of social identification in the development of paranoia, is therefore an important contribution to knowledge for stakeholders in public health, social psychological theory, and psychiatric treatment.

1.8 Co-author roles

The co-authors are identified with a footnote in each Chapter (where relevant). In Chapter 3, Professor Bentall provided the dataset and Dr Algorta provided statistical guidance with regards to the taxometrics methods. Dr McIntyre and Dr Varese provided guidance with the interpretation of results. All of the co-authors proofread this chapter for publication. In Chapter 4, some parts of a published paper have been used. This theory paper was led by Dr McIntyre with substantial input from Professor Bentall and myself. The theory was devised by the three of us and we all proofread the article before it was published.

In Chapter 5, Dr Sitko (PhD), Bodycote (MSc) and Hampson (MSc) collected the student data whilst completing their studies, under the guidance of Professor Bentall. Dr McIntyre assisted with the moderation mediation analyses and Dr White

helped with interpreting the results. All of the co-authors proofread this chapter for publication. The general population sample in this chapter was collected by the funders of my PhD (National Institute for Health Research, Collaboration for Leadership in Applied Health Research and Care North West Coast (NIHR CLAHRC NWC)).

All other data collection and analyses were completed by me under the supervision of Dr White, Dr McIntyre and Professor Bentall, the three of whom also supervised the write-up of my thesis.

1.9 References

Abi-Dargham, A. (2004). Do we still believe in the dopamine hypothesis? New data bring new evidence.

Abi-Dargham, A., Gil, R., Krystal, J., Baldwin, R. M., Seibyl, J. P., Bowers, M. ...& Laruelle, M. (1998). Increased striatal dopamine transmission in schizophrenia: confirmation in a second cohort. *American Journal of Psychiatry*, *155*(6), 761-767.

Allen, N. B., & Badcock, P. B. (2003). The social risk hypothesis of depressed mood: evolutionary, psychosocial, and neurobiological perspectives. *Psychological bulletin*, *129*(6), 887.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Andreasen, N. C. (1982). Negative symptoms in schizophrenia: definition and reliability. *Archives of general psychiatry*, *39*(7), 784-788.

Andreasen, N.C. (1983). *The Scale for the Assessment of Negative Symptoms (SANS).* Iowa City: University of Iowa.

Andreasen, N. C. (1984). The *Scale for the assessment of positive symptoms (SAPS)*. Iowa City: University of Iowa.

Andreasen, N. C., & Grove, W. M. (1986). Evaluation of positive and negative symptoms in schizophrenia. *Psychiatrie & Psychobiologie*. 108-121.

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., & Vohs, K. D. (2001). Bad is stronger than good. *Review of general psychology*, *5*(4), 323.

Bebbington, P. E., McBride, O., Steel, C., Kuipers, E., Radovanovi̇ĉ, M., Brugha, T., ... & Freeman, D. (2013). The structure of paranoia in the general population. *The British Journal of Psychiatry*, *202*(6), 419-427.

Beels, C. C. (1981). Social support and schizophrenia. *Schizophrenia Bulletin*, *7*(1), 58-72.

Beels, C. C., Gutwirth, L., Berkeley, J., & Struening, E. (1984). Measurements of social support in schizophrenia. *Schizophrenia Bulletin*, *10*(3), 399.

Bell, M. D., Lysaker, P. H., Beam-Goulet, J. L., Milstein, R. M., & Lindenmayer, J. P. (1994). Five-component model of schizophrenia: assessing the factorial invariance of the positive and negative syndrome scale. *Psychiatry Research*, *52*(3), 295-303.

Bentall, R. P. (2004). *Madness explained: Psychosis and human nature*. Penguin UK.

Bentall, R. P., Corcoran, R., Howard, R., Blackwood, N., & Kinderman, P. (2001). Persecutory delusions: a review and theoretical integration. *Clinical psychology review*, *21*(8), 1143-1192.

Bentall, R. P., de Sousa, P., Varese, F., Wickham, S., Sitko, K., Haarmans, M., & Read, J. (2014). From adversity to psychosis: pathways and mechanisms from specific adversities to specific symptoms. *Social psychiatry and psychiatric epidemiology*, *49*(7), 1011-1022.

Bentall, R. P., Jackson, H. F., & Pilgrim, D. (1988). Abandoning the concept of'schizophrenia ': Some implications of validity arguments for psychological research into psychotic phenomena. *British journal of clinical psychology*, *27*(4), 303-324.

Bentall, R. P., Kaney, S., & Dewey, M. E. (1991). Paranoia and social reasoning: an attribution theory analysis. *British Journal of Clinical Psychology*, *30*(1), 13-23.

Bentall, R. P., Kinderman, P., & Kaney, S. (1994). The self, attributional processes and abnormal beliefs: towards a model of persecutory delusions. *Behaviour research and therapy*, *32*(3), 331-341.

Bentall, R. P., Rouse, G., Kinderman, P., Blackwood, N., Howard, R., Moore, R., ... & Corcoran, R. (2008). Delusions of paranoia in schizophrenia spectrum disorders and depression: the transdiagnostic role of expectations of negative events and negative self-esteem. *The Journal of nervous and mental disease*, *196*(5), 375-383.

Bentall, R. P., Rowse, G., Shryane, N., Kinderman, P., Howard, R., Blackwood, N., ... & Corcoran, R. (2009). The cognitive and affective structure of paranoid

delusions: a transdiagnostic investigation of patients with schizophrenia spectrum disorders and depression. *Archives of general psychiatry*, *66*(3), 236-247.

Berridge, K. C., & Robinson, T. E. (1998). What is the role of dopamine in reward: hedonic impact, reward learning, or incentive salience? *Brain research reviews*, *28*(3), 309-369.

Berry, J. W. (1999). Intercultural relations in plural societies. *Canadian Psychology/Psychologie Canadienne*, *40*(1), 12.

Berry, J. W., & Kim, U. (1988). Acculturation and mental health. In P. Dasen, J. W. Berry & N. Sartorius (Eds.), *Health And Cross-Cultural Psychology: Towards Application* (Vol. 12, pp. 207-236). London: Sage.

Berry, J. W., Kim, U., Minde, T., & Mok, D. (1987). Comparative studies of acculturative stress. *International migration review*, 491-511.

Berry, K., Barrowclough, C., & Wearden, A. (2008). Attachment theory: a framework for understanding symptoms and interpersonal relationships in psychosis. *Behaviour research and therapy*, *46*(12), 1275-1282.

Berry, K., Wearden, A., Barrowclough, C., & Liversidge, T. (2006). Attachment styles, interpersonal relationships and psychotic phenomena in a non-clinical student sample. *Personality and Individual Differences*, *41*(4), 707-718.

Berry, K., Wearden, A., Barrowclough, C., Oakland, L., & Bradley, J. (2012). An investigation of adult attachment and the nature of relationships with voices. *British Journal of Clinical Psychology*, *51*(3), 280-291.

Bhugra, D., Leff, J., Mallett, R., Der, G., Corridan, B., & Rudge, S. (1997). Incidence and outcome of schizophrenia in whites, African-Caribbeans and Asians in London. *Psychological medicine*, *27*(4), 791-798.

Bizumic, B., Reynolds, K. J., Turner, J. C., Bromhead, D., & Subasic, E. (2009). The Role of the group in individual functioning: School identification and the psychological well-being of staff and students. *Applied Psychology*, *58*(1), 171-192.

Björkqvist, K. (2001). Different names, same issue. *Social development*, *10*(2), 272-274.

Blackwood, N. J., Bentall, R. P., Ffytche, D. H., Simmons, A., Murray, R. M., & Howard, R. J. (2004). Persecutory delusions and the determination of self-relevance: an fMRI investigation. *Psychological medicine*, *34*(4), 591-596.

Bowlby J (1969). *Attachment and Loss*. Volume I: Attachment, p.3. Basic Books: New York.

Bowlby J (1973). *Attachment and Loss*. Volume II: Separation: Anxiety and Anger, p.456. Basic Books: New York.

Boydell, J., Van Os, J., McKenzie, K., Allardyce, J., Goel, R., McCreadie, R. G., & Murray, R. M. (2001). Incidence of schizophrenia in ethnic minorities in London: ecological study into interactions with environment. *Bmj*, *323*(7325), 1336.

Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimination among African Americans: Implications for group identification and well-being. *Journal of personality and social psychology*, *77*(1), 135.

Breier, A., Su, T. P., Saunders, R., Carson, R. E., Kolachana, B. S., De Bartolomeis, A., ... & Pickar, D. (1997). Schizophrenia is associated with elevated amphetamine-induced synaptic dopamine concentrations: evidence from a novel positron emission tomography method. *Proceedings of the National Academy of Sciences*, *94*(6), 2569-2574.

Brown, K. W., & White, T. (1992). Syndromes of chronic schizophrenia and some clinical correlates. *The British Journal of Psychiatry*, *161*(3), 317-322.

Brugha, T. S. (2010). Social support. *Principles of social psychiatry*, 461-476.

Cameron, J. E. (1999). Social identity and the pursuit of possible selves: Implications for the psychological well-being of university students. *Group Dynamics: Theory, Research, and Practice*, *3*(3), 179.

Candido, C. L., & Romney, D. M. (1990). Attributional style in paranoid vs. depressed patients. *British Journal of Medical Psychology*, *63*(4), 355-363.

Cantor-Graae, E., & Selten, J. P. (2005). Schizophrenia and migration: a meta-analysis and review. *American Journal of Psychiatry*, *162*(1), 12-24.

Cialdini, R. B., Borden, R. J., Thorne, A., Walker, M. R., Freeman, S., & Sloan, L. R. (1976). Basking in reflected glory: Three (football) field studies. *Journal of personality and social psychology*, *34*(3), 366.

Clare, L., Rowlands, J. M., & Quin, R. (2008). Collective strength: The impact of developing a shared social identity in early-stage dementia. *Dementia*, *7*(1), 9-30.

Collins, J. L., Rickman, L. E., & Mathura, C. B. (1980). Frequency of schizophrenia and depression in a Black inpatient population. *Journal of the National Medical Association*, *72*(9), 851.

Corcoran, R., Mercer, G., & Frith, C. D. (1995). Schizophrenia, symptomatology and social inference: investigating "theory of mind" in people with schizophrenia. *Schizophrenia research*, *17*(1), 5-13.

Croudace, T. J., Kayne, R., Jones, P. B., & Harrison, G. L. (2000). Non-linear relationship between an index of social deprivation, psychiatric admission prevalence and the incidence of psychosis. *Psychological medicine*, *30*(1), 177-185.

Crow, T. J. (1980). Molecular pathology of schizophrenia: more than one disease process? *British medical journal*, *280*(6207), 66.

Crump, C., Sundquist, K., Sundquist, J., & Winkleby, M. A. (2011). Neighborhood deprivation and psychiatric medication prescription: a Swedish national multilevel study. *Annals of epidemiology*, *21*(4), 231-237.

Cruwys, T., Dingle, G. A., Haslam, C., Haslam, S. A., Jetten, J., & Morton, T. A. (2013). Social group memberships protect against future depression, alleviate depression symptoms and prevent depression relapse. *Social Science & Medicine*, *98*, 179-186.

Cruwys, T., Haslam, S. A., Dingle, G. A., Haslam, C., & Jetten, J. (2014). Depression and social identity: An integrative review. *Personality and Social Psychology Review*, *18*(3), 215-238.

Cruwys, T., South, E. I., Greenaway, K. H., & Haslam, S. A. (2015). Social identity reduces depression by fostering positive attributions. *Social Psychological and Personality Science*, *6*(1), 65-74.

David, A. S. (1999). Auditory hallucinations: phenomenology, neuropsychology and neuroimaging update. *Acta Psychiatrica Scandinavica*, *99*, 95-104.

Davies, S., Thornicroft, G., Leese, M., Higgingbotham, A., & Phelan, M. (1996). Ethnic differences in risk of compulsory psychiatric admission among representative cases of psychosis in London. *Bmj*, *312*(7030), 533-537.

Delusion. (2019). In *OxfordDictionaries.com*. Retrieved from https://en.oxforddictionaries.com/definition/delusion.

Dingle, G. A., Stark, C., Cruwys, T., & Best, D. (2014). Breaking good: Breaking ties with social groups may be good for recovery from substance misuse. British Journal of Social Psychology, 54(2), 236–254.

Dollfus, S., Petit, M., Lesieur, P., & Menard, J. F. (1991). Principal-component analysis of PANSS and SANS-SAPS global ratings in schizophrenic patients. *European Psychiatry*. 6, 251-259.

Doody, G. A., Götz, M., Johnstone, E. C., Frith, C. D., & Owens, D. C. (1998). Theory of mind and psychoses. *Psychological medicine*, *28*(2), 397-405.

Dudley, R., Taylor, P., Wickham, S., & Hutton, P. (2015). Psychosis, delusions and the "jumping to conclusions" reasoning bias: a systematic review and meta-analysis. *Schizophrenia bulletin*, *42*(3), 652-665.

Eitinger, L. (1959). The incidence of mental disease among refugees in Norway. *Journal of Mental Science*, *105*(439), 326-338.

Ellett, L., Freeman, D., & Garety, P. A. (2008). The psychological effect of an urban environment on individuals with persecutory delusions: the Camberwell walk study. *Schizophrenia research*, *99*(1), 77-84.

Erickson, D. H., Beiser, M., Iacono, W. G., Fleming, J. A., & Lin, T. Y. (1989). The role of social relationships in the course of first-episode schizophrenia and affective psychosis. *The American journal of psychiatry*, *146*(11), 1456.

Fear, C., Sharp, H., & Healy, D. (1996). Cognitive processes in delusional disorders. *The British Journal of Psychiatry*, *168*(1), 61-67.

Fearon, P., Kirkbride, J. B., Morgan, C., Dazzan, P., Morgan, K., Lloyd, T., ... & Mallett, R. (2006). Incidence of schizophrenia and other psychoses in ethnic minority groups: results from the MRC AESOP Study. *Psychological medicine*, *36*(11), 1541-1550.

Flavell, J. H., Flavell, E. R., & Green, F. L. (1983). Development of the appearance-reality distinction. *Cognitive psychology*, *15*(1), 95-120.

Fone, D. L., & Dunstan, F. (2006). Mental health, places and people: a multilevel analysis of economic inactivity and social deprivation. *Health & place*, *12*(3), 332-344.

Fowler, D., Hodgekins, J., Garety, P., Freeman, D., Kuipers, E., Dunn, G., ... & Bebbington, P. E. (2011). Negative cognition, depressed mood, and paranoia: a longitudinal pathway analysis using structural equation modeling. *Schizophrenia bulletin*, *38*(5), 1063-1073.

Freeman, D., & Freeman, J. (2014). At last, a promising alternative to antipsychotics for schizophrenia. *The Guardian*, *7*.

Freeman, D., & Garety, P. A. (2000). Comments on the content of persecutory delusions: Does the definition need clarification? British Journal of Clinical Psychology, 39, 407-414.

Freeman, D., Garety, P., Fowler, D., Kuipers, E., Dunn, G., Bebbington, P., & Hadley, C. (1998). The London-East Anglia randomized controlled trial of cognitive-behaviour therapy for psychosis IV: Self-esteem and persecutory delusions. *British Journal of Clinical Psychology*, *37*(4), 415-430.

Freeman, D., Garety, P. A., Bebbington, P. E., Smith, B., Rollinson, R., Fowler, D., ... & Dunn, G. (2005). Psychological investigation of the structure of paranoia in a non-clinical population. *The British Journal of Psychiatry*, *186*(5), 427-435.

Freeman, D., Garety, P. A., Kuipers, E., Fowler, D., & Bebbington, P. E. (2002). A cognitive model of persecutory delusions. British Journal of Clinical Psychology, 41, 331–347.

Freeman, D., McManus, S., Brugha, T., Meltzer, H., Jenkins, R., & Bebbington, P. (2011). Concomitants of paranoia in the general population. *Psychological medicine, 41*(5), 923-936.

Frith, C.D. (1992). The Cognitive Neuropsychology of Schizophrenia. Psychology Press.

Frith, C. D., & Corcoran, R. (1996). Exploring 'theory of mind' in people with schizophrenia. *Psychological medicine*, *26*(3), 521-530.

Garety, P. (1991). Reasoning and delusions. *The British Journal of Psychiatry, 159* (Suppl 14), 14-18.

Garety, P. A., & Hemsley, D. R. (1987). Characteristics of delusional experience. *European Archives of Psychiatry and Neurological Sciences*, *236*(5), 294-298.

Garety, P. A. & Hemsley, D. R. (1994). Delusions: Investigations into the Psychology of Delusional Reasoning. Oxford University Press: Oxford.

Garety, P. A., Everitt, B. S., & Hemsley, D. R. (1988). The characteristics of delusions: A cluster analysis of deluded subjects. *European archives of psychiatry and neurological sciences*, *237*(2), 112-114.

Garety, P. A., & Freeman, D. (1999). Cognitive approaches to delusions: a critical review of theories and evidence. *British journal of clinical psychology*, *38*(2), 113-154.

Gecici, O., Kuloglu, M., Guler, O., Ozbulut, O., Kurt, E., Onen, S., ... & Alatas, G. (2010). Phenomenology of delusions and hallucinations in patients with schizophrenia. *Klinik Psikofarmakoloji Bülteni-Bulletin of Clinical Psychopharmacology*, *20*(3), 204-212.

Gleibs, I. H., Haslam, C., Jones, J. M., Haslam, S. A., McNeill, J., & Connolly, H. (2011). No country for old men? The role of a 'Gentlemen's Club in

promoting social engagement and psychological well-being in residential care. *Aging & mental health*, *15*(4), 456-466.

Goodwin, F. K., & Jamison, K. R. (2007). *Manic-depressive illness: bipolar disorders and recurrent depression* (Vol. 1). Oxford University Press.

Green, C. E. L., Freeman, D., Kuipers, E., Bebbington, P., Fowler, D., Dunn, G., & Garety, P. A. (2008). Measuring ideas of persecution and social reference: the Green et al. Paranoid Thought Scales (GPTS). *Psychological Medicine*, *38*(1), 101-111.

Greenaway, K., Haslam, S.A., Branscombe, N.R., Cruwys, T., Ysseldyk, R., & Heldreth, C. (2015). From "we" to "me": Group identification enhances perceived personal control with consequences for health and well-being. Journal of Personality and Social Psychology, 109(1), 53–74.

Gumley, A., & Schwannauer, M. (2006). *Staying well after psychosis: A cognitive interpersonal approach to recovery and relapse prevention*. John Wiley & Sons.

Halpern, D., & Nazroo, J. (2000). The ethnic density effect: results from a national community survey of England and Wales. *International Journal of Social Psychiatry*, *46*(1), 34-46.

Haltenhof, H., Ulrich, H., & Blanenburg, W. (1999). Themes of delusion in 84 patients with unipolar depression. *Krankenhauspsychiatrie*, *10*, 87-90.

Harrison, G., Owens, D., Holton, A., Neilson, D., & Boot, D. (1988). A prospective study of severe mental disorder in Afro-Caribbean patients. *Psychological medicine*, *18*(3), 643-657.

Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G., & Chang, M. X. L. (2016). Groups 4 Health: Evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of affective disorders*, *194*, 188-195.

Haslam, C., Haslam, S. A., Jetten, J., Bevins, A., Ravenscroft, S., & Tonks, J. (2010). The social treatment: The benefits of group interventions in residential care settings. *Psychology and aging*, *25*(1), 157.

Haslam, C., Holme, A., Haslam, S. A., Iyer, A., Jetten, J., & Williams, W. H. (2008). Maintaining group memberships: Social identity continuity predicts well-being after stroke. *Neuropsychological rehabilitation*, *18*(5-6), 671-691.

Haslam, S. A. (2004). *Psychology in organizations*. Sage.

Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: an emerging agenda for applied psychology. *Applied Psychology*, *58*(1), 1-23.

Haslam, S. A., O'brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British Journal of Social Psychology*, *44*(3), 355-370.

Hitch, P. J., & Rack, P. H. (1980). Mental illness among Polish and Russian refugees in Bradford. *The British Journal of Psychiatry*, *137*(3), 206-211.

Horan, W. P., Subotnik, K. L., Snyder, K. S., & Nuechterlein, K. H. (2006). Do recent-onset schizophrenia patients experience a "social network crisis?" *Psychiatry: Interpersonal and Biological Processes*, *69*(2), 115-129.

Hornsey, M. J., & Hogg, M. A. (2000). Assimilation and diversity: An integrative model of subgroup relations. *Personality and Social Psychology Review*, *4*(2), 143-156.

Howes, O. D., & Kapur, S. (2009). The dopamine hypothesis of schizophrenia: version III—the final common pathway. *Schizophrenia bulletin*, *35*(3), 549-562.

Howes, O. D., & Murray, R. M. (2014). Schizophrenia: an integrated sociodevelopmental-cognitive model. *The Lancet*, *383*(9929), 1677-1687.

Howes, O. D., Kambeitz, J., Kim, E., Stahl, D., Slifstein, M., Abi-Dargham, A., & Kapur, S. (2012). The nature of dopamine dysfunction in schizophrenia and what this means for treatment: meta-analysis of imaging studies. *Archives of general psychiatry*, *69*(8), 776-786.

Humphreys, L., & Barrowclough, C. (2006). Attributional style, defensive functioning and persecutory delusions: Symptom-specific or general coping strategy? *British Journal of Clinical Psychology*, *45*(2), 231-246.

Huq, S. F., Garety, P. A., & Hemsley, D. R. (1988). Probabilistic judgements in deluded and non-deluded subjects. *The Quarterly Journal of Experimental Psychology*, *40*(4), 801-812.

Hutchinson, G., Takei, N., Fahy, T. A., Bhugra, D., Gilvarry, C., Moran, P., ... & Murray, R. M. (1996). Morbid risk of schizophrenia in first-degree relatives of white and African-Caribbean patients with psychosis. *The British Journal of Psychiatry*, *169*(6), 776-780.

Iyer, A., Jetten, J., Tsivrikos, D., Postmes, T., & Haslam, S. A. (2009). The more (and the more compatible) the merrier: Multiple group memberships and identity compatibility as predictors of adjustment after life transitions. *British Journal of Social Psychology*, *48*(4), 707-733.

Jablensky, A., Sartorius, N., Ernberg, G., Anker, M., Korten, A., Cooper, J. E., ... & Bertelsen, A. (1992). Schizophrenia: manifestations, incidence and course in different cultures A World Health Organization Ten-Country Study. *Psychological Medicine Monograph Supplement*, *20*, 1-97.

Jetten, J., & Pachana, N. (2012). Not wanting to grow old: A Social Identity Model of Identity Change (SIMIC) analysis of driving cessation among older adults.

Jetten, J., Branscombe, N. R., Haslam, S. A., Haslam, C., Cruwys, T., Jones, J. M., Cui, L., … Zhang, A. (2015). Having a lot of a good thing: Multiple important group memberships as a source of self-esteem. PloS One, 10(6), e0131035.

Jetten, J., Haslam, C., & Alexander, S. H. (Eds.). (2012). *The social cure: Identity, health and well-being*. Psychology Press.

Jetten, J., O'Brien, A., & Trindall, N. (2002). Changing identity: Predicting adjustment to organizational restructure as a function of subgroup and superordinate identification. *British Journal of Social Psychology*, *41*(2), 281-297.

Johns, L. C., Cannon, M., Singleton, N., Murray, R. M., Farrell, M., Brugha, T., ... & Meltzer, H. (2004). Prevalence and correlates of self-reported psychotic

symptoms in the British population. *The British Journal of Psychiatry*, *185*(4), 298-305.

Jones, J. M., Haslam, S. A., Jetten, J., Williams, W. H., Morris, R., & Saroyan, S. (2011). That which doesn't kill us can make us stronger (and more satisfied with life): The contribution of personal and social changes to well-being after acquired brain injury. *Psychology and Health*, *26*(3), 353-369.

Jørgensen, P., & Jensen, J. (1994). Delusional beliefs in first admitters. *Psychopathology*, *27*(1-2), 100-112.

Kaney, S., & Bentall, R. P. (1989). Persecutory delusions and attributional style. *British Journal of Medical Psychology*, *62*(2), 191-198.

Kay, S. R., Fiszbein, A., & Opler, L. A. (1987). The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophrenia bulletin*, *13*(2), 261-276.

Kay, S. R., Opler, L. A., & Lindenmayer, J. P. (1988). Reliability and validity of the positive and negative syndrome scale for schizophrenics. *Psychiatry research*, *23*(1), 99-110.

Kay, S. R., Opler, L. A., & Lindenmayer, J. P. (1989). The Positive and Negative Syndrome Scale (PANSS): rationale and standardisation. *The British Journal of Psychiatry*. 155 (Suppl. 7), 59–65.

Kelly, B. D., O'Callaghan, E., Waddington, J. L., Feeney, L., Browne, S., Scully, P. J., ... & Kinsella, A. (2010). Schizophrenia and the city: a review of literature and prospective study of psychosis and urbanicity in Ireland. *Schizophrenia research*, *116*(1), 75-89.

Kendell, R., & Jablensky, A. (2003). Distinguishing between the validity and utility of psychiatric diagnoses. *American journal of psychiatry*, *160*(1), 4-12.

Kinderman, P., & Bentall, R. P. (1996). Self-discrepancies and persecutory delusions: evidence for a model of paranoid ideation. *Journal of abnormal psychology*, *105*(1), 106.

King, M., Coker, E., Leavey, G., Hoare, A., & Johnson-Sabine, E. (1994). Incidence of psychotic illness in London: comparison of ethnic groups. *Bmj*, *309*(6962), 1115-1119.

King, M., Nazroo, J., Weich, S., McKenzie, K., Bhui, K., Karlson, S., ... & McManus, S. (2005). Psychotic symptoms in the general population of England. *Social psychiatry and psychiatric epidemiology*, *40*(5), 375-381.

Kircher, T. T., & Thienel, R. (2005). Functional brain imaging of symptoms and cognition in schizophrenia. *Progress in brain research*, *150*, 299-604.

Kirkbride, J. B., Barker, D., Cowden, F., Stamps, R., Yang, M., Jones, P. B., & Coid, J. W. (2008). Psychoses, ethnicity and socio-economic status. *The British Journal of Psychiatry*, *193*(1), 18-24.

Kirkbride, J. B., Jones, P. B., Ullrich, S., & Coid, J. W. (2012). Social deprivation, inequality, and the neighborhood-level incidence of psychotic syndromes in East London. *Schizophrenia bulletin*, *40*(1), 169-180.

Knight, C., Haslam, S. A., & Haslam, C. (2010). In home or at home? How collective decision making in a new care facility enhances social interaction and wellbeing amongst older adults. *Ageing & Society*, *30*(8), 1393-1418.

Krabbendam, L., & Van Os, J. (2005). Schizophrenia and urbanicity: a major environmental influence—conditional on genetic risk. *Schizophrenia bulletin*, *31*(4), 795-799.

Langdon, R., Michie, P. T., Ward, P. B., McConaghy, N., Catts, S. V., & Coltheart, M. (1997). Defective self and/or other mentalising in schizophrenia: a cognitive neuropsychological approach. *Cognitive Neuropsychiatry*, *2*(3), 167-193.

Lawrie, S. M., Hall, J., McIntosh, A. M., Owens, D. G., & Johnstone, E. C. (2010). The 'continuum of psychosis': scientifically unproven and clinically impractical. 197, 423-425.

Lee, R. M., & Robbins, S. B. (1998). The relationship between social connectedness and anxiety, self-esteem, and social identity. *Journal of Counseling Psychology*, *45*(3), 338-345.

Lenzenweger, M. F., Dworkin, R. H., & Wethington, E. (1989). Models of positive and negative symptoms in schizophrenia: An empirical evaluation of latent structures. *Journal of Abnormal Psychology*, *98*(1), 62.

Leucht, S., Tardy, M., Komossa, K., Heres, S., Kissling, W., Salanti, G., & Davis, J. M. (2012). Antipsychotic drugs versus placebo for relapse prevention in schizophrenia: a systematic review and meta-analysis. *The Lancet*, *379*(9831), 2063-2071.

Lewis, G., David, A., Andréassson, S., & Allebeck, P. (1992). Schizophrenia and city life. *The Lancet*, *340*(8812), 137-140.

Lindström, E., & Knorring, L. V. (1993). Principal component analysis of the Swedish version of the Positive and Negative Syndrome Scale for schizophrenia. *Nordic Journal of Psychiatry*, *47*(4), 257-263.

Lundberg, P., Cantor-Graae, E., Kahima, M., & Östergren, P. O. (2007). Delusional ideation and manic symptoms in potential future emigrants in Uganda. *Psychological medicine*, *37*(4), 505-512.

Lykouras, L., Oulis, P., Psarros, K., Daskalopoulou, E., Botsis, A., Christodoulou, G. N., & Stefanis, C. (2000). Five-factor model of schizophrenic psychopathology: how valid is it? *European Archives of Psychiatry and Clinical Neuroscience*, *250*(2), 93-100.

Lyon, H. M., Kaney, S., & Bentall, R. P. (1994). The defensive function of persecutory delusions: Evidence from attribution tasks. *The British Journal of Psychiatry*, *164*(5), 637-646.

MacBeth, A., Gumley, A., Schwannauer, M., & Fisher, R. (2011). Attachment states of mind, mentalization, and their correlates in a first-episode psychosis sample. *Psychology and Psychotherapy: Theory, Research and Practice*, *84*(1), 42-57.

MacBeth, A., Schwannauer, M., & Gumley, A. (2008). The association between attachment style, social mentalities, and paranoid ideation: An analogue study. *Psychology and Psychotherapy: Theory, Research and Practice*, *81*(1), 79-93.

Macdonald, E. M., Hayes, R. L., & Baglioni, A. J. (2000). The quantity and quality of the social networks of young people with early psychosis compared with closely matched controls. *Schizophrenia Research*, *46*(1), 25-30.

Marder, S. R., Davis, J. M., & Chouinard, G. (1997). The effects of risperidone on the five dimensions of schizophrenia derived by factor analysis: combined results of the North American trials. *The Journal of clinical psychiatry*. 58, 538–546.

Martin, J. A., & Penn, D. L. (2002). Attributional style in schizophrenia: an investigation in outpatients with and without persecutory delusions. *Schizophrenia Bulletin, 28*(1), 131-141.

Mass, R., Schoemig, T., Hitschfeld, K., Wall, E., & Haasen, C. (2000). Psychopathological syndromes of schizophrenia: Evaluation of the dimensional structure of the Positive and Negative Syndrome Scale. *Schizophrenia bulletin*, *26*(1), 167.

McIntyre, J. C., Elahi, A., & Bentall, R. P. (2016). Social identity and psychosis: Explaining elevated rates of psychosis in migrant populations. *Social and Personality Psychology Compass*, *10*(11), 619-633.

McIntyre, J. C., Wickham, S., Barr, B., & Bentall, R. P. (2017). Social identity and psychosis: Associations and psychological mechanisms. *Schizophrenia Bulletin*, *44*(3), 681-690.

McGrath, J., Saha, S., Welham, J., El Saadi, O., MacCauley, C., & Chant, D. (2004). A systematic review of the incidence of schizophrenia: the distribution of rates and the influence of sex, urbanicity, migrant status and methodology. *BMC medicine*, *2*(1), 13.

McKay, R., Langdon, R., & Coltheart, M. (2005). Paranoia, persecutory delusions and attributional biases. *Psychiatry Research*, *136*(2-3), 233-245.

McLean, B. F., Mattiske, J. K., & Balzan, R. P. (2017). Association of the jumping to conclusions and evidence integration biases with delusions in psychosis: a detailed meta-analysis. *Schizophrenia bulletin*, *43*(2), 344-354.

McManus, S., Bebbington, P., Jenkins, R., & Brugha, T. (2016). *Mental Health and Wellbeing in England: Adult Psychiatric Morbidity Survey 2014: a Survey Carried Out for NHS Digital by NatCen Social Research and the Department of Health Sciences, University of Leicester*. NHS Digital.

Mental Health Act 1983. (2015). Retrieved from http://www.legislation.gov.uk/ukpga/1983/20/contents.

Meehl, P. E. (1995). Bootstraps taxometrics: Solving the classification problem in psychopathology. *American psychologist*, *50*(4), 266.

Miller, D. D., Arndt, S., & Andreasen, N. C. (1993). Alogia, attentional impairment, and inappropriate affect: their status in the dimensions of schizophrenia. *Comprehensive Psychiatry*, *34*(4), 221-226.

Minas, I., Stuart, G. W., Klimidis, S., Jackson, H. J., Singh, B. S., & Copolov, D. L. (1992). Positive and negative symptoms in the psychoses: multidimensional scaling of SAPS and SANS items. *Schizophrenia research*, *8*(2), 143-156.

Mirowsky, J., & Ross, C. E. (1983). Paranoia and the structure of powerlessness. *American Sociological Review*, 228-239.

Mitchley, N. J., Barber, J., Gray, J. M., Brooks, D. N., & Livingston, M. G. (1998). Comprehension of irony in schizophrenia. *Cognitive Neuropsychiatry*, *3*(2), 127-138.

Morgan, C., Charalambides, M., Hutchinson, G., & Murray, R. M. (2010). Migration, ethnicity, and psychosis: toward a sociodevelopmental model. *Schizophrenia bulletin*, *36*(4), 655-664.

Moscarelli, M., Maffei, C., Cesana, B. M., Boato, P., Farma, T., Grilli, A., ... & Cazzullo, C. L. (1987). An international perspective on assessment of negative and positive symptoms in schizophrenia. *The American journal of psychiatry*. 144, 1595-1598.

Moutoussis, M., Williams, J., Dayan, P., & Bentall, R. P. (2007). Persecutory delusions and the conditioned avoidance paradigm: towards an integration of the psychology and biology of paranoia. *Cognitive Neuropsychiatry*, *12*(6), 495-510.

Mueser, K. T., Tarrier, N., & Dickerson, F. (1999). Handbook of Social Functioning in Schizophrenia. *Journal of Nervous and Mental Disease*, *187*(3), 192.

Murphy, P., Bentall, R. P., Freeman, D., O'Rourke, S., & Hutton, P. (2018). The paranoia as defence model of persecutory delusions: a systematic review and meta-analysis. *The Lancet Psychiatry*, *5*(11), 913-929.

Ndetei, D. M. (1988). Psychiatric phenomenology across countries: constitutional, cultural, or environmental? *Acta Psychiatrica Scandinavica*, *78*(S344), 33-44.

Ndetei, D. M., & Vadher, A. (1984). Frequency and clinical significance of delusions across cultures. *Acta Psychiatrica Scandinavica*, *70*(1), 73-76.

Nuevo, R., Chatterji, S., Verdes, E., Naidoo, N., Arango, C., & Ayuso-Mateos, J. L. (2010). The continuum of psychotic symptoms in the general population: a cross-national study. *Schizophrenia bulletin*, *38*(3), 475-485.

Ødegaard, O. (1932). Emigration and insanity: a study of mental disorders among Norwegian-born population in Minnesota. *Acta Psychiatr Neurol Scand*, (suppl 4).

Oher, F. J., Demjaha, A., Jackson, D., Morgan, C., Dazzan, P., Morgan, K., ... & Jones, P. B. (2014). The effect of the environment on symptom dimensions in the first episode of psychosis: a multilevel study. *Psychological medicine*, *44*(11), 2419-2430.

Paranoia. (2019). In *OxfordDictionaries.com*. Retrieved from https://en.oxforddictionaries.com/definition/paranoia.

Peralta, V., De Leon, J., & Cuesta, M. J. (1992). Are there more than two syndromes in schizophrenia? A critique of the positive-negative dichotomy. *The British Journal of Psychiatry*, *161*(3), 335-343.

Perry, M. J. (1996). The relationship between social class and mental disorder. *Journal of Primary Prevention*, *17*(1), 17-30.

Peters, E., Day, S., & Garety, P. (1997). From preconscious to conscious processing-where does the abnormality lie in delusions? *Schizophrenia Research*, *24*(1-2), 120.

Peterson, C., Semmel, A., Von Baeyer, C., Abramson, L. Y., Metalsky, G. I., & Seligman, M. E. (1982). The attributional style questionnaire. *Cognitive therapy and research*, *6*(3), 287-299.

Postmes, T., & Branscombe, N. R. (Eds.). (2010). *Rediscovering social identity*. Hove: Psychology.

Premack, D., & Woodruff, G. (1978). Does the chimpanzee have a theory of mind? *Behavioral and brain sciences*, *1*(4), 515-526.

Prince, M., Patel, V., Saxena, S., Maj, M., Maselko, J., Phillips, M. R., & Rahman, A. (2007). No health without mental health. *The lancet*, *370*(9590), 859-877.

Public Health England (2016). *Homelessness: applying All Our Health*. [online] Gov.uk. Available at: https://www.gov.uk/government/publications/homelessness-applying-all-our-health/homelessness-applying-all-our-health.

Putnam, R. D. (2001). *Bowling alone: The collapse and revival of American community*. Simon and Schuster.

Reininghaus, U. A., Morgan, C., Simpson, J., Dazzan, P., Morgan, K., Doody, G. A., ... & Fearon, P. (2008). Unemployment, social isolation, achievement–expectation mismatch and psychosis: findings from the ÆSOP Study. *Social psychiatry and psychiatric epidemiology*, *43*(9), 743-751.

Reininghaus, U., Böhnke, J. R., Hosang, G., Farmer, A., Burns, T., McGuffin, P., & Bentall, R. P. (2016). Evaluation of the validity and utility of a transdiagnostic psychosis dimension encompassing schizophrenia and bipolar disorder. *The British Journal of Psychiatry*, 209(2), 107-113.

Reininghaus, U., Priebe, S., & Bentall, R. P. (2012). Testing the psychopathology of psychosis: evidence for a general psychosis dimension. *Schizophrenia bulletin*, *39*(4), 884-895.

Rohde, P. (2001). The relevance of hierarchies, territories, defeat for depression in humans: hypotheses and clinical predictions. *Journal of affective disorders*, *65*(3), 221-230.

Ross, C. E., Mirowsky, J., & Pribesh, S. (2001). Powerlessness and the amplification of threat: Neighborhood disadvantage, disorder, and mistrust. *American sociological review*, 568-591.

Rubin, M., Paolini, S., & Crisp, R. J. (2010). A processing fluency explanation of bias against migrants. *Journal of Experimental Social Psychology*, *46*(1), 21-28.

Saha, S., Chant, D., Welham, J., & McGrath, J. (2005). A systematic review of the prevalence of schizophrenia. *PLoS medicine*, *2*(5), e141.

Sands, E. A., & Berry, J. W. (2009). Acculturation and mental health among Greek-Canadians in Toronto. *Canadian Journal of Community Mental Health*, *12*(2), 117-124.

Sani, F., Magrin, M. E., Scrignaro, M., & McCollum, R. (2010). In-group identification mediates the effects of subjective in-group status on mental health. British Journal of Social Psychology, 49(4), 883-893.

Sani, F., Wakefield, J. R., Herrera, M., & Zeybek, A. (2017). On the association between greater family identification and lower paranoid ideation among non-clinical individuals: evidence from Cypriot and Spanish students. *Journal of Social and Clinical Psychology*, *36*(5), 396-418.

Sarfati, Y., Hardy-Baylé, M. C., Besche, C., & Widlöcher, D. (1997). Attribution of intentions to others in people with schizophrenia: a non-verbal exploration with comic strips. *Schizophrenia research*, *25*(3), 199-209.

Schofield, P., Ashworth, M., & Jones, R. (2011). Ethnic isolation and psychosis: re-examining the ethnic density effect. *Psychological medicine*, *41*(6), 1263-1269.

Selten, J. P., & Cantor-Graae, E. (2005). Social defeat: risk factor for schizophrenia? *The British Journal of Psychiatry*, *187*(2), 101-102.

Selten, J. P., Cantor-Graae, E., Slaets, J., & Kahn, R. S. (2002). Ødegaard's selection hypothesis revisited: schizophrenia in Surinamese immigrants to the Netherlands. *American Journal of Psychiatry*, *159*(4), 669-671.

Sharp, H. M., Fear, C. F., & Healy, D. (1997). Attributional style and delusions: An investigation based on delusional content. *European Psychiatry*, *12*(1), 1-7.

Sharpley, M. S., Hutchinson, G., Murray, R. M., & McKenzie, K. (2001). Understanding the excess of psychosis among the African—Caribbean population in England: review of current hypotheses. *The British Journal of Psychiatry*, *178*(S40), s60-s68.

Shevlin, M., McAnee, G., Bentall, R. P., & Murphy, J. (2015). Specificity of association between adversities and the occurrence and co-occurrence paranoia and hallucinations: evaluating the stability of childhood risk in an adverse adult environment. *Psychosis*, *7*(3), 206-216.

Shevlin, M., McElroy, E., Bentall, R. P., Reininghaus, U., & Murphy, J. (2016). The psychosis continuum: testing a bifactor model of psychosis in a general population sample. *Schizophrenia bulletin*, *43*(1), 133-141.

Sitko, K., Bentall, R. P., Shevlin, M., & Sellwood, W. (2014). Associations between specific psychotic symptoms and specific childhood adversities are mediated by attachment styles: an analysis of the National Comorbidity Survey. *Psychiatry research*, *217*(3), 202-209.

Skelton, M., Khokhar, W. A., & Thacker, S. P. (2015). Treatments for delusional disorder. *Schizophrenia bulletin*, *41*(5), 1010.

Sprong, M., Schothorst, P., Vos, E., Hox, J., & Van Engeland, H. (2007). Theory of mind in schizophrenia: meta-analysis. *The British Journal of Psychiatry*, *191*(1), 5-13.

Stahl, S. M. (2004). Symptoms and circuits, part 3: schizophrenia. *Journal of Clinical Psychiatry*, *65*(1), 8-9.

Steinberg, M. D., Pardes, H., Bjork, D., & Sporty, L. (1977). Demographic and clinical characteristics of black psychiatric patients in a private general hospital. *Psychiatric Services*, *28*(2), 128-132.

Stompe, T., Friedman, A., Ortwein, G., Strobl, R., Chaudhry, H. R., Najam, N., & Chaudhry, M. R. (1999). Comparison of delusions among schizophrenics in Austria and in Pakistan. *Psychopathology*, *32*(5), 225-234.

Sugarman, P. A., & Craufurd, D. (1994). Schizophrenia in the Afro-Caribbean community. *The British Journal of Psychiatry*, *164*(4), 474-480.

Sundquist, K., Frank, G., & Sundquist, J. A. N. (2004). Urbanisation and incidence of psychosis and depression: follow-up study of 4.4 million women and men in Sweden. *The British Journal of Psychiatry*, *184*(4), 293-298.

Tajfel, H. (1970). Experiments in intergroup discrimination. *Scientific American*, *223*(5), 96-103.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The social psychology of intergroup relations*, *33*(47), 74.

Tajfel, H., Billig, M. G., Bundy, R. P., & Flament, C. (1971). Social categorization and intergroup behaviour. *European journal of social psychology*, *1*(2), 149-178.

Thewissen, V., Bentall, R. P., Lecomte, T., van Os, J., & Myin-Germeys, I. (2008). Fluctuations in self-esteem and paranoia in the context of daily life. *Journal of abnormal psychology*, *117*(1), 143.

Thoits, P. A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of health and social behavior*, *52*(2), 145-161.

Thomas, J., Bentall, R. P., Hadden, L., & O'Hara, L. (2017). Ethnic identity and paranoid thinking: Implicit out-group preference and language dominance predict paranoia in Emirati women. *Journal of behavior therapy and experimental psychiatry*, *56*, 122-128.

Toch, H., Adams, K., & Greene, R. (1987). Ethnicity, disruptiveness, and emotional disorder among prison inmates. *Criminal Justice and Behavior*, *14*(1), 93-109.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Basil Blackwell.

Turner, J. C., Oakes, P. J., Haslam, S. A., & McGarty, C. (1994). Self and collective: Cognition and social context. *Personality and social psychology bulletin*, *20*(5), 454-463.

Van Os, J., Castle, D. J., Takei, N., Der, G., & Murray, R. M. (1996). Psychotic illness in ethnic minorities: clarification from the 1991 census. *Psychological medicine*, *26*(1), 203-208.

Van Os, J., Hanssen, M., Bijl, R. V., & Ravelli, A. (2000). Strauss (1969) revisited: a psychosis continuum in the general population? *Schizophrenia research*, *45*(1), 11-20.

Veling, W., Susser, E., Van Os, J., Mackenbach, J. P., Selten, J. P., & Hoek, H. W. (2008). Ethnic density of neighborhoods and incidence of psychotic disorders among immigrants. *American Journal of Psychiatry*, *165*(1), 66-73.

Westermeyer, J. (1989). Paranoid symptoms and disorders among 100 among refugees: a longitudinal study. *Acta Psychiatrica Scandinavica*, *80*(1), 47-59.

Wickham, S., Sitko, K., & Bentall, R. P. (2015). Insecure attachment is associated with paranoia but not hallucinations in psychotic patients: the mediating role of negative self-esteem. *Psychological Medicine*, *45*(7), 1495-1507.

Wickham, S., Taylor, P., Shevlin, M., & Bentall, R. P. (2014). The impact of social deprivation on paranoia, hallucinations, mania and depression: the role of discrimination social support, stress and trust. *PLoS One*, *9*(8), e105140.

Wicks, S., Hjern, A., & Dalman, C. (2010). Social risk or genetic liability for psychosis? A study of children born in Sweden and reared by adoptive parents. *American Journal of Psychiatry*, *167*(10), 1240-1246.

Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition*, *13*(1), 103-128.

World Health Organization. (1973). Report of the international pilot study of schizophrenia.

World Health Organization. (1992). *The ICD-10 classification of mental and behavioural disorders: Clinical descriptions and diagnostic guidelines*. Geneva: World Health Organization.

Yadav, M., Parle, M., Kadian, M., & Sharma, K. (2015). A review on psychosis and anti-psychotic plants. *Asian J Pharm Clin Res*, *8*(4), 24-28.

Yeh, C. J. (2003). Age, acculturation, cultural adjustment, and mental health symptoms of Chinese, Korean, and Japanese immigrant youths. *Cultural Diversity and Ethnic Minority Psychology*, *9*(1), 34.

Young, H. F., & Bentall, R. P. (1997). Probabilistic reasoning in deluded, depressed and normal subjects: effects of task difficulty and meaningful versus non-meaningful material. *Psychological Medicine, 27*(2), 455-465.

Chapter 2: A Continuum of Paranoia

2.1 Assessing the Continuum of Paranoia

Despite current iterations of the Diagnostic Statistical Manual-5 (DSM-5: American Psychiatric Association, 2013) continuing to adopt a categorical approach to conceptualising psychosis, there has been an ongoing debate since the 19th century about whether psychotic experiences exist on a continuum with normal functioning. In support of the notion that symptoms of psychosis lie on a continuum, schizotypal traits have been observed in general population samples (L. Chapman & J. Chapman, 1980; Claridge & Hewitt, 1987). Schizotypal traits refer to a range of personality characteristics and experiences which are a risk for psychotic disorders. They include social withdrawal, reduced cognitive capacity, and affective dysregulation (Walter, Fernandez, Snelling & Barkus, 2016).

Further evidence that psychotic experiences lie on a continuum with healthy functioning, and that these experiences exist in both clinical and non-clinical populations, was found in a systematic review and meta-analysis of epidemiological studies (van Os, Linscott, Myin-Germeys, Delespaul, & Krabbendam, 2009). Specifically, van Os and colleagues found that subclinical levels of psychosis are very common in the general population and can be used to predict the likelihood of an individual developing a clinical psychotic disorder later in life. Paranoia, in particular, is widespread (Freeman et al., 2005; Freeman Pugh, Vorontsova, Antley & Slater, 2010) and has been found to be present in 12.6% of a general population sample in New Zealand (Poulton, Caspi, Moffitt, Cannon, Murray & Harrington, 2000).

Due to the large number of individuals reporting symptoms of paranoia, it is important to establish exactly who is affected before theories can be used to drive empirical research. Specifically, it is important to know whether social and psychological processes in what is considered 'clinical paranoia' should be investigated separately from social and psychological processes in 'common paranoid thoughts' that are present in the general population. If paranoia exists on a continuum, then previous taxonic/categorical conceptualisations may pose problems to researchers, as these models imply some kind of 'separation' between patients and non-patients. Further, dichotomisation of symptoms as being present or absent can enhance the stigma associated with psychological symptoms (Pescosolido, Monahan, Link, Stueve, & Kikuzawa, 1999; Wood, Birtel, Alsawy, Pyle, & Morrison, 2014) which may serve to accentuate levels of distress and impede people's willingness to seek help.

If psychotic symptoms, such as paranoia, do exist on a continuum with healthy functioning, this will enable researchers to understand the factors that reduce the risk of less severe paranoia, so that these can inform effective interventions for individuals diagnosed with clinical levels of paranoia. Also, the understanding of psychological processes involved in paranoia in both general and clinical populations may serve to improve efforts to detect and intervene early so that levels of paranoia do not intensify. However, if two distinct groups are found; one with a lower severity of paranoia and one with clinical levels of paranoia, interventions and policies need to be specifically developed for those who present clinical levels of paranoia. Moreover, a delusions of paranoia taxon would suggest that the social and psychological mechanisms underpinning 'clinical paranoia' may be different to those in 'common' paranoia, and that theoretical frameworks applied to understanding paranoia need to consider this potential dichotomy in mechanisms.

The properties of paranoia have been assessed previously in various ways. Freeman et al. (2005) conducted research using a general population sample that was asked to complete an online survey. Analyses consisted of studying the association between the severities of paranoia with the number of people reporting to suffer from it. It was found that paranoid thoughts occur on a hierarchy of severity, with symptoms low on the scale being less distressing and very common (e.g. fear of rejection) and symptoms at the top being more severe and less common (e.g. conspiracy theories).

This hierarchical arrangement of paranoid thoughts was further assessed by Bebbington et al. (2013) using confirmatory factor analysis (CFA), latent class analysis (LCA), and factor mixture modelling (FMM). CFA examines the number of factors underlying a set of variables and the relationship between them to measure a particular phenomenon; in this case, paranoia. In CFA, paranoia is viewed as a dimensional variable. However, LCA views paranoia as having distinct categories and examines whether there are hidden groupings (classes) in the data. FMM is a hybrid model that incorporates dimensional and categorical variables. This means that by using FMM, researchers can concurrently measure diagnostic category membership and the range of severity within and across diagnostic classes. Bebbington at al.'s results suggested that a paranoia continuum existed with four underlying subcomponents. The subcomponents were: *interpersonal sensitivity* (emotional and social – assessing the abilities of others using nonverbal cues), *mistrust* (lack of trust in the intentions of others), *ideas of reference* (believing innocuous events hold

personal significance) and *ideas of persecution* (an individual believing they are being targeted). It was concluded that individuals could lie on a continuum for each of the subcomponents.

While such studies provide fair evidence that symptoms of paranoia lie on a continuum with healthy functioning, there is a reliance on prevalence rates and factor analytic techniques to make this conclusion. Moreover, previous studies have examined general population samples, which minimise the number of people with severe symptoms, thus making it more difficult to identify separate taxons should they exist. The study in the next chapter, aims to assess the structure of paranoia using taxometric methods (Meehl, 1995). Such methods were designed to specifically test for discontinuities in a spectrum of psychopathology. These procedures rely on quantitative indexes and researchers use multiple analyses to interrogate a dataset (J. Ruscio, Haslam & A. Ruscio, 2006). A diverse dataset was also used that consisted of participants from the general population, participants with an at-risk mental state (ARMS) and patients with a diagnosis on the schizophrenia spectrum.

Mixed results have been found when taxometric methods have been used to study schizotypal traits (e.g. Rawlings, Williams, Haslam, & Claridge, 2008; Lenzenweger, 2011). However, a systematic review by Haslam, Holland and Kuppens (2012) found that most taxometric studies of schizotypal traits have concluded that there is a continuum between healthy functioning and mental illness. It is possible that this ambiguity is due to a lack of focus on specific symptoms.

Whilst previous studies have shown that paranoid thoughts are common, whether paranoia forms a single distribution or whether people with severe symptoms represent a separate population that could potentially be subject to different antecedents and psychological processes has not been tested using taxometric methods. In the next chapter, a diverse dataset is interrogated for discontinuities in the spectrum of paranoia using taxometric procedures.

2.2 References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.

Bebbington, P. E., McBride, O., Steel, C., Kuipers, E., Radovanoviĉ, M., Brugha, T., ... & Freeman, D. (2013). The structure of paranoia in the general population. *The British Journal of Psychiatry*, *202*(6), 419-427.

Chapman, L. J., & Chapman, J. P. (1980). Scales for rating psychotic and psychotic like experiences as continua. *Schizophrenia Bulletin*, *6*(3), 476.

Claridge, G., & Hewitt, J. K. (1987). A biometrical study of schizotypy in a normal population. *Personality and Individual Differences*, *8*(3), 303-312.

Freeman, D., Garety, P. A., Bebbington, P. E., Smith, B., Rollinson, R., Fowler, D., ... & Dunn, G. (2005). Psychological investigation of the structure of paranoia in a non-clinical population. *The British Journal of Psychiatry*, *186*(5), 427-435.

Freeman, D., Pugh, K., Vorontsova, N., Antley, A., & Slater, M. (2010). Testing the continuum of delusional beliefs: An experimental study using virtual reality. *Journal of abnormal psychology*, *119*(1), 83.

Haslam, N., Holland, E., & Kuppens, P. (2012). Categories versus dimensions in personality and psychopathology: a quantitative review of taxometric research. *Psychological medicine*, *42*(5), 903-920.

Lenzenweger, M. F. (2011). Schizotypy and schizophrenia: The view from experimental psychopathology. New York, NY, US: Guilford Press.

Meehl, P. E. (1995). Bootstraps taxometrics: Solving the classification problem in psychopathology. *American Psychologist*, *50*(4), 266.

Pescosolido, B. A., Monahan, J., Link, B. G., Stueve, A., & Kikuzawa, S. (1999). The public's view of the competence, dangerousness, and need for legal coercion of persons with mental health problems. *American journal of public health*, *89*(9), 1339-1345.

Poulton, R., Caspi, A., Moffitt, T. E., Cannon, M., Murray, R., & Harrington, H. (2000). Children's self-reported psychotic symptoms and adult schizophreniform disorder: a 15-year longitudinal study. *Archives of general psychiatry*, *57*(11), 1053-1058.

Rawlings, D., Williams, B., Haslam, N., & Claridge, G. (2008). Taxometric analysis supports a dimensional latent structure for schizotypy. *Personality and Individual Differences*, *44*(8), 1640-1651.

Ruscio, J., Haslam, N., & Ruscio, A. M. (2006). *Introduction to the Taxometric Method: A Practical Guide*. Psychology Press.

Van Os, J., Linscott, R. J., Myin-Germeys, I., Delespaul, P., & Krabbendam, L. (2009). A systematic review and meta-analysis of the psychosis continuum: evidence for a psychosis proneness–persistence–impairment model of psychotic disorder. *Psychological medicine*, *39*(2), 179-195.

Walter, E. E., Fernandez, F., Snelling, M., & Barkus, E. (2016). Genetic consideration of schizotypal traits: A review. *Frontiers in psychology*, *7*, 1769.

Wood, L., Birtel, M., Alsawy, S., Pyle, M., & Morrison, A. (2014). Public perceptions of stigma towards people with schizophrenia, depression, and anxiety. *Psychiatry research*, *220*(1), 604-608.

Chapter 3: Do Delusions of Paranoia exist on a Continuum with Subclinical Paranoia? A multi-method Taxometric Study[1]

[1] This chapter has been published as: Elahi, A., Algorta, G. P., Varese, F., McIntyre, J. C., & Bentall, R. P. (2017). Do delusions of paranoia exist on a continuum with subclinical paranoia? A multi-method taxometric study. *Schizophrenia research*, *190*, 77-81. (see Appendix A)

3.1 Abstract

There is widespread interest in whether psychosis exists on a continuum with healthy functioning. Previous research has implied that paranoia, a common symptom of psychosis, exists on a continuum but this has not been investigated using samples including both patients and non-patients and up-to-date taxometric methods. I aimed to assess the latent structure of paranoia in a diverse sample using taxometric methods. I obtained data from 2836 participants, including the general population as well as at-risk mental state and psychotic patients using the P-scale of the Paranoia and Deservedness Scale. Data was analysed using three taxometric procedures, MAMBAC, MAXEIG and L-MODE (Ruscio, 2016), and two sets of paranoia indicators (subscales and selected items from the P scale), including and excluding the patient groups. Eleven of the twelve analyses supported a dimensional model. Using the full sample and subscales as indicators, the MAMBAC analysis was ambiguous. Overall, the findings converged on a dimensional latent structure. A dimensional latent structure of paranoia implies that the processes involved in sub-clinical paranoia may be similar to those in clinical paranoia.

3.2 Introduction

There is debate about whether psychotic symptoms lie on a continuum with less severe psychotic-like experiences, which are widespread in the general population (Lawrie, Hall, McIntosh, Owens, & Johnstone, 2010). This debate has focused on the distinction between psychosis and schizotypal traits (Lenzenweger, 2011), with less attention being paid to specific symptoms.

Paranoid (persecutory) beliefs are the most common type of delusion, experienced by approximately 90% of first episode schizophrenia-spectrum patients (Moutoussis et al., 2007). In a general population sample, Freeman et al. (2005) reported that paranoid beliefs occur on a hierarchy of severity, with rare and severe delusions of paranoia building upon much more common forms of suspiciousness. Using latent class analysis (LCA) and factor mixture modelling (FMM), they later found evidence of a paranoia continuum with four underlying components: interpersonal sensitivity, mistrust, ideas of reference and ideas of persecution (Bebbington et al., 2013).

Taxometric methods, developed by Meehl (1995) are specifically designed to test for discontinuities in a spectrum of psychopathology. These procedures have been strengthened with new interpretational strategies that rely on quantitative indexes and researchers now use multiple analyses to interrogate a dataset (J. Ruscio, Haslam, A. Ruscio, 2006). As noted in the previous chapter, mixed results have been found when taxometric methods have been utilised, possibly due to the studies focusing on a broad diagnostic concept (e.g. schizophrenia), rather than specific symptoms. To my knowledge, no taxometric studies of paranoia have been reported. Therefore, in this chapter taxometric analyses will be conducted on data collected using a large general population sample as well as patients with psychosis and individuals with an at-risk mental state (ARMS; Yung et al., 2005).

The data was compiled from published and unpublished studies conducted over a seven-year period (2008 to 2015). Analyses were carried out on participants' scores on the Persecution and Deservedness Scale (PaDS; Melo, Corcoran, Shryane, & Bentall, 2009), a questionnaire designed to assess clinical and sub-clinical paranoia, which includes separate scales measuring beliefs about persecution (P scale) and beliefs about whether persecution is deserved (D scale). Only the former is suitable for taxometric analyses because many deservedness items were not designed to measure strength of paranoid conviction and many responses were missing by design

(participants were only required to complete a deservedness item if they scored above a threshold of 2 on a corresponding persecution item).

3.3 Methods

3.3.1 Participants

Data was obtained from studies that included 2874 participants who had been asked to complete the PaDS, consisting of 2357 participants from the general population (2157 were students), 157 participants with an ARMS for psychosis and 360 patients with schizophrenia-spectrum diagnoses. Of these, 38 participants (20 students, 2 non-student controls, and 16 clinical patients, 1.3% of the total sample) did not provide complete PaDS data, so the final sample size was 2836. Participants with missing data did not differ on age or gender compared to those with complete data when the entire data set or individual groups were considered.

Student participants were recruited via cross-sectional studies conducted at Bangor, Lancaster, Liverpool and Manchester Universities: Pickering, Simpson and Bentall, (2008), Melo et al. (2009), Udachina, Thewissen, Myin-Germeys, Fitzpatrick, O'kane and Bentall (2009) and Varese, Barkus and Bentall (2011, 2012) and unpublished studies conducted for PhD qualifications by F. Varese and A. Udachina at Bangor University (both awarded in 2012). The paranoia measures were completed online or in face-to-face interviews. Responses were mostly not anonymous, and participants received course credits for completing the questionnaire; however, data was anonymised during the compilation of the present dataset.

Patients with schizophrenia-spectrum disorders were recruited through a series of cross-sectional and case-control studies, along with the non-student healthy controls. These studies were Varese et al. (2011, 2012), Morrison et al. (2013), Sellwood Morrison, Beck, Heffernan, Law and Bentall (2013), Udachina, Varese, Myin-Germeys and Bentall (2014) and Wickham, Sitko and Bentall (2015) as well as unpublished studies conducted by K. Sitko and M. Haarmans whilst undertaking PhDs at Liverpool University (both awarded in 2016). Participants varied in their clinical diagnoses which were clinician-assigned. However, the diagnoses for 351/360 patients and 200 non-student controls were supported by a researcher-conducted mental state interview using the Positive and Negative Syndrome Scale (see below). Patients were judged to meet the criteria for schizophrenia (273), acute and transient psychosis (12), schizoaffective disorder (34), delusional disorder (5), unspecific nonorganic psychosis

(24), psychosis due to substance misuse (5), bipolar disorder (1) and postpartum psychosis (1). Five participants did not have a diagnosis recorded.

Those with an ARMS were from two of five sites participating in a cognitive behavioural therapy trial (Morrison et al., 2012) and all met the at-risk mental health criteria based on a researcher-administered interview using the Comprehensive Assessment of At-Risk Mental States (CAARMS; Yung et al., 2005).

All studies were approved by relevant university and National Health Service research ethics committees. As many of the studies were carried out at the same sites, care was taken to ensure that no participant contributed data more than once; in these cases, scores were taken from the earliest study. Demographic data (age ranges, gender) and PaDS scores are reported in Table 3.1.

Table 3.1. *Demographic Data and PaDS Scores.*

	Students from the general population	**Controls from the general population**	**At-risk mental state participants**	**Clinical Patients**
Females (*N*)	1502	118	90	178
Males (*N*)	615	80	67	166
Not Disclosed (*N*)	20	-	-	-
Age Mean (±SD)	21.6(±5.8)	37.3(±13.0)	20.9(±4.0)	39.8(±12.4)
PaDS Total Scores Mean (±SD)	14.1(±8.5)	8.5(±7.9)	22.6(±9.8)	18.8(±11.1)

3.3.2 Measures

The PaDS consists of two ten-item scales measuring strength of persecutory belief (P scale) and appraisals about whether perceived persecution is deserved (D scale, not used in this study). Each item is scored on a five-point Likert scale. The possible range of P scores is between 0 and 40.

The P scale has been validated in clinical and non-clinical samples and correlates with Fenigstein and Vanable's (1992) paranoia scale, $r = .78$, $N = 605$ (Melo et al., 2009). There are no published cut-offs. However, if a cut-off of +1 SD was used to estimate a paranoid taxon size, 13.24% of the students, 4.55% of the general population controls, 50.32% of ARMS patients and 36.91% of schizophrenia spectrum patients would be assigned to the paranoid category (498 participants). These figures seem reasonable given that previous studies of young adults have reported that a sizeable minority experience paranoid beliefs (for example, 12.6% of the Dunedin cohort study were judged to be paranoid; Poulton, Caspi, Moffitt, Cannon, Murray & Harrington, 2000) and that many of the patients were in remission at the time of assessment.

A principal component analysis of the P items in the present dataset yielded a single component accounting for approximately 48% of the variance. The P scale was reliable with McDonald's coefficient $\text{omega}_{\text{hierarchical}}$ for the whole scale (Dunn, Baguley & Brunsden, 2014) = .88 (95% CI = .87 - .89). Additionally, 351 clinical participants and 200 controls were assessed by interviewers using the positive and negative subscales of the Positive and Negative Syndrome Scale (PANSS; Kay, Fiszbein & Opler, 1987); PaDS P scores correlated with PANSS delusions, $r = .53$, $p < .001$ in the sample as a whole and $r = .42$, $p < .001$ in the clinical participants only, and with PANSS suspiciousness, $r = .65$, $p < .001$, in the sample as a whole and $r = .59$, $p < .001$ in the clinical participants only (these correlations could not be meaningfully computed in the non-clinical participants alone because these PANSS subscales were required to be < 3, and hence there was insufficient variance in these data).

Valid quasi-continuous indicators are recommended for taxometric analyses (Walters & Ruscio, 2010) and some procedures (e.g. MAXEIG) require at least three indicators. Of the four subdomains of paranoia identified by Bebbington et al. (2013), PaDS items pertain to three, the exception being ideas of reference. Therefore, using these subdomains, I summed appropriate items to generate indicators at sub-scale level to conduct the analyses. P1, P3 and P9 were judged to constitute the category 'ideas of persecution' or threat of harm (e.g. P1: "There are times when I worry others might be plotting against me"); P2, P4, P6 and P7 were judged to constitute 'interpersonal sensitivity' to the negative opinions of others (e.g. P7: "There are people who think of

me as a bad person"). P5, P8 and P10 were judged to represent 'mistrust' (e.g. P10: "You should only trust yourself").

From the same analysis, MacDonald's $omega_{subscale}$ was calculated separately for the three subscales (Dunn et al., 2014). The values were .72, (95% CI = .70 - .74) for ideas of persecution, .76 (95% CI = .75 - .78) for interpersonal sensitivity, and .69 (95% CI = .67 - .71) for mistrust. Correlations between these indicators ranged from .64 to .72. However, for taxometric analyses, it is desirable to have correlations between indicators that are as low as possible (Ruscio et al., 2006). Hence, to generate a second set of indicators, I identified items from each of the sub-scales that correlated the least with the other two sub-scale indicators. The lowest paired item correlations were between P1, P7 and P10; ranging from .27 to .37. Analyses were therefore conducted using both sets of indicators: the indicators at sub-scale level and the three single-item indicators (P1, P7 and P10). Because I recognised a risk of creating a pseudo-taxon when combining the general population and clinical samples, analyses were first conducted on the general population alone and then on the whole sample.

I calculated the three subscales vs. full-scale correlations as a minimal indication of validity of the subscales in Table 3.2. Indicator validity was calculated through standardised mean differences (Cohen's *d*) across cases assigned to putative taxon and complement groups using the base rate classification method (Ruscio et al., 2006).

Table 3.2. *Single-item/subscales and single-item/P scale correlations (Spearman Rank correlations, r_s).*

	Harm Subscale	Negative Attitudes Subscale	Mistrust Subscale	P Scale
P1	.83*	.60*	.52*	.72*
P7	.45*	.70*	.45*	.62*
P10	.39*	.41*	.75*	.57*
P Scale	.87*	.92*	.86*	-

*$p < .001$

3.3.3 Statistical Analyses and Procedure

Taxometric programs for R (version 2014-07-29) were employed (Ruscio, 2016; available at http://ruscio.pages.tcnj.edu/quantitative-methods-program-code/). Mean above minus below a cut (MAMBAC; Meehl & Yonce, 1994), maximum eigenvalue (MAXEIG; Waller & Meehl, 1998) and latent mode factor analysis (L-MODE; Waller & Meehl, 1998) were conducted to examine the convergence between the findings from different methods (Ruscio et al., 2006). Each analysis generates a characteristic plot. For the MAMBAC and MAXEIG function, the plot will be peaked when the latent variable is categorical but flat when it is dimensional. In the case of L-MODE, a bimodal graph is apparent when the data is categorical, but unimodal when the trait is dimensional.

MAMBAC, MAXEIG and L-MODE curves were compared to curves derived from simulated categorical and continuous comparison data (J. Ruscio, A. Ruscio & Meron, 2007). As well as visually inspecting the curves, I calculated the comparison curve fit index (CCFI; Ruscio et al., 2007). The CCFI is a value between 0 (dimensional) and 1 (categorical), and evaluates the fit of the curves generated by the analyses in comparison with curves that would be expected if the construct was taxonic (categorical) or dimensional. Ruscio et al. (2006) suggest that the greater the deviation of a CCFI score from .5, the stronger the result. However, a CCFI score between .4 and .6 should be interpreted with caution.

3.4 Results

A full range of PaDS scores was obtained from all the groups; this was expected as some patients were in remission and some of the ARMS group showed no paranoid symptoms when being tested. A one way ANOVA on these scores was highly significant, $F [3, 2382] = 101.39$, $p < .001$, with all groups differing from the others (Tukey $p < .001$).

Results for the population sample (N=2357) and then the whole sample combined (N=2836) are presented in Table 3.3. A taxon would be expected, if present, to be particularly evident in the latter analyses. There were 2 (types of indicators) x 2 (datasets) x 3 (taxometric methods) = 12 analyses in total.

The estimated validity of the item indicators was above a Cohen' *d* value of 1.5 as recommended in taxometric analyses (Meehl, 1995). These values were higher than 2.0 when the sub scales were used as indicators. Estimated within-group correlations were non-problematic. Mean indicator correlations were higher in the full sample. When using subscales as indicators, the within-group correlations ranged from .04 to .49; the majority of values were below .30. The within-group correlations when using individual item indicators were between .002 and .18.

Table 3.3 provides the summary values (CCFI) for these analyses. All but one analysis supports a continuum latent structure (CCFI values ranged from 0.08 to 0.59). The exception (0.59) that was observed when the whole sample was analysed using MAMBAC with the item indicators, reflected an ambiguous structural solution.

Table 3.3. *CCFI values for the three item indicators and full scale.*

	MAMBAC	**MAXEIG**	**L-MODE**
General population sample item indicators	0.30	0.13	0.28
Whole sample item indicators	0.59	0.20	0.36
General population sample full scale	0.17	0.08	0.19
Whole sample full scale	0.32	0.12	0.23

Note: CCFI is a value between 0 (dimensional) and 1 (categorical). The greater the deviation of a CCFI score from .5, the stronger the result; when a CCFI score is between .4 and .6, results should be interpreted with some caution.

The graphical outputs of all analyses are shown in Figure 3.1. The graphical representations concord with the CCFI data; eleven of the graphical outputs illustrate a dimensional underlying structure, whilst the MAMBAC function with the whole sample and item indicators poorly discriminates between the models.

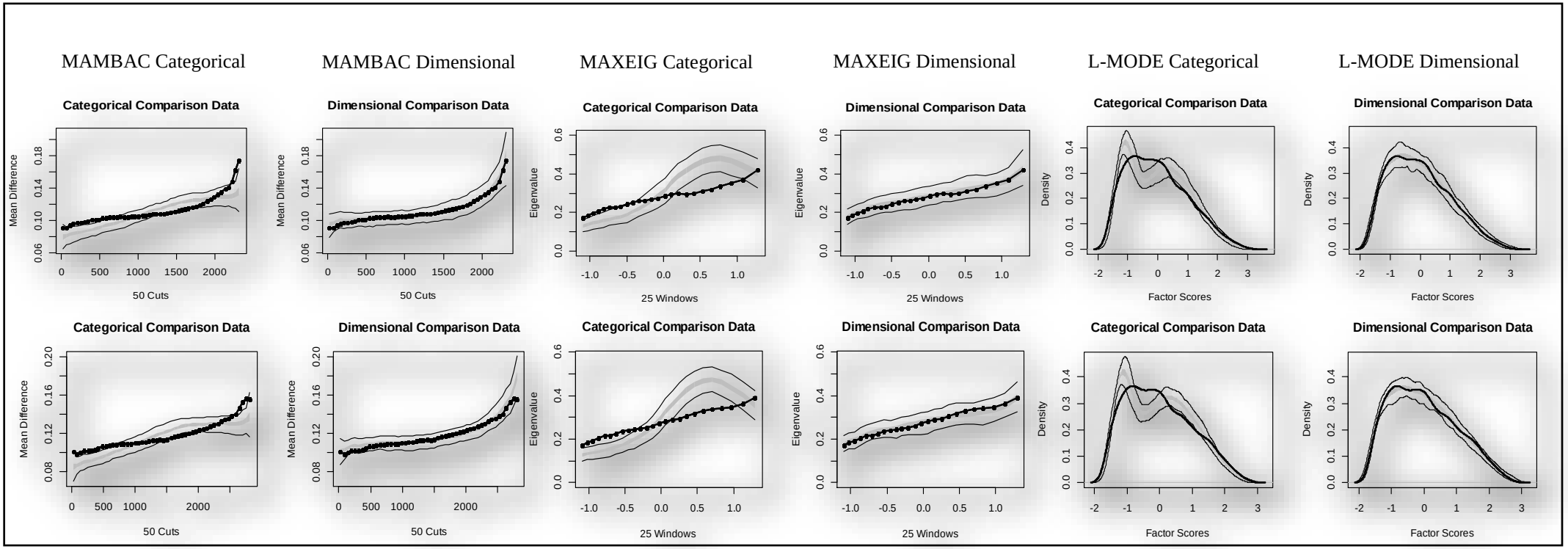


Figure 3.1. *Graphical outputs of all analyses.*

The dark line with data points represents sample data. Grey regions reflect taxonic or dimensional solutions that were generated by stimulations based on parameters extracted from the sample data. Visual inspection therefore allows a judgment about whether the sample data more closely fits a prototypical categorical or dimensional solution. The top row of taxometric graphs were derived from the general population sample and the bottom row from the full sample. The graphs illustrate the latent structure of paranoia within the general population and full sample using the three item indicators. Apart from the MAMBAC curve for the full sample, which is ambiguous, the other graphs fit a dimensional underlying latent structure of paranoia.

3.5 Discussion

I examined the latent structure of paranoid beliefs in a large sample of patients and participants from the general population. With one exception, the three taxometric methods, using two sets of indicators, demonstrated that the underlying structure of paranoia fitted continuous rather than taxonic simulation data.

The exception was the MAMBAC analysis with item indicators that included patients. Although it is not clear why this analysis did not conform to the results of the remaining eleven, it is important to note that the analyses included patients that were most vulnerable to the identification of a pseudo-taxon. Despite this, in eleven out of twelve cases, the results were unambiguously non-taxonic and, even in the case of the exception, the results were ambiguous (a taxon was not suggested but the continuum hypothesis was also not supported). Hence, it can be argued that the hypothesis that paranoia exists on a continuum with healthy functioning, as suggested by Freeman et al. (2005) and Bebbington et al. (2013), was supported. This finding is consistent with general models of a positive psychosis symptom continuum (e.g. Claridge, 1987) and with research that finds evidence for continua across most areas of psychopathology (Haslam, Holland & Kuppens, 2012).

Confidence in the findings is strengthened by concordance with previous findings using different methods. Using a population sample, Freeman et al. (2005) found that the distribution of paranoia closely fitted a single continuous dimension. Bebbington et al. (2013) used a factor mixture modelling (FMM) analysis on data collected from an epidemiological sample, again finding evidence of a continuum. The findings contrast with studies that have reported taxons in schizotypy (e.g. Everett & Linscott 2015; Linscott, Marie, Arnott & Clarke, 2006; Linscott, Allardyce & van Os, 2009; Morton et al., 2017) although other studies have not reported schizotypy taxons (e.g. Ahmed, Green, Buckley & McFarland, 2012; Ahmed, Green, Goodrum, Doane, Birgenheir & Buckley, 2013). Haslam et al. (2012) have argued that studies with the highest methodological rigor have generally yielded dimensional results. A strength of the current study is the consideration of non-clinical and clinical samples. I acknowledged the risk of creating a pseudo-taxon when including the clinical participants but pursued this strategy anyway because it was conservative with respect to supporting the continuum hypothesis (in the event, no taxon was detected).

Another difference between, on the one hand, this study and the studies of Freeman et al. (2005) and Bebbington et al. (2013), and, on the other hand, the

schizotypy studies that have produced mixed results, is the focus on a single symptom. There has been considerable debate about the extent to which schizophrenia/psychosis is a heterogeneous concept (Bentall, 2004). Although recent studies have converged on multidimensional structures that incorporate a positive symptom (hallucinations and delusions) syndrome (van Os & Kapur, 2009; Reininghaus et al., 2016), the existence of this syndrome does not guarantee that the component symptoms have common underlying causes (Borsboom & Cramer, 2013). An intriguing possibility is that psychotic symptoms have different latent structures. It would be interesting, for example, to examine the latent structure of hallucinations.

Some limitations of the present study should be noted. First, 90% of the general population sample consisted of students, although their age range was close to that of the at-risk mental state group. Despite evidence of the internal consistency and convergent validity of the PaDS, I did not measure ideas of reference, which are a facet of paranoid thinking (Bebbington et al., 2013). Also, although previous comparisons found no significant differences (Wagner, Horn & Maercker, 2014), I could not check for systematic differences between online and face-to-face completion of the questionnaire.

The study has important clinical and research implications. The findings suggest that there may be shared psychological mechanisms in clinical and non-clinical paranoia and, therefore, that studies with high scoring non-patients may be informative about targets for intervention. It would be useful to carry out studies with other measures of paranoia while incorporating measures of psychological and neuropsychological functioning that have been hypothesised to play a role in paranoid ideation; for example, self-esteem, theory of mind and the jumping to conclusions bias (Bentall et al., 2009). Given the evidence linking social adversity to psychosis, and that some of these effects may be symptom-specific (Bentall et al. 2014), research on how environmental and other risk factors influence where people tend to fall on the continuum may point the way towards preventative public health policies.

3.6 References

Ahmed, A. O., Green, B. A., Buckley, P. F., & McFarland, M. E. (2012). Taxometric analyses of paranoid and schizoid personality disorders. *Psychiatry research*, *196*(1), 123-132.

Ahmed, A. O., Green, B. A., Goodrum, N. M., Doane, N. J., Birgenheir, D., & Buckley, P. F. (2013). Does a latent class underlie schizotypal personality disorder? Implications for schizophrenia. *Journal of abnormal psychology*, *122*(2), 475.

Bebbington, P. E., McBride, O., Steel, C., Kuipers, E., Radovanovič, M., Brugha, T., ... & Freeman, D. (2013). The structure of paranoia in the general population. *The British Journal of Psychiatry*, 202(6), 419-427.

Bentall, R. P. (2004). *Madness explained: Psychosis and human nature*. Penguin UK.

Bentall, R. P., de Sousa, P., Varese, F., Wickham, S., Sitko, K., Haarmans, M., & Read, J. (2014). From adversity to psychosis: pathways and mechanisms from specific adversities to specific symptoms. *Social psychiatry and psychiatric epidemiology*, *49*(7), 1011-1022.

Bentall, R. P., Rowse, G., Shryane, N., Kinderman, P., Howard, R., Blackwood, N., ... & Corcoran, R. (2009). The cognitive and affective structure of paranoid delusions: a transdiagnostic investigation of patients with schizophrenia spectrum disorders and depression. *Archives of general psychiatry*, *66*(3), 236-247.

Borsboom, D., & Cramer, A. O. (2013). Network analysis: an integrative approach to the structure of psychopathology. *Annual review of clinical psychology*, *9*, 91-121.

Claridge, G. (1987). 'The schizophrenias as nervous types' revisited. *The British Journal of Psychiatry*, *151*(6), 735-743.

Dunn, T. J., Baguley, T., & Brunsden, V. (2014). From alpha to omega: A practical solution to the pervasive problem of internal consistency estimation. *British Journal of Psychology*, *105*(3), 399-412.

Everett, K. V., & Linscott, R. J. (2015). Dimensionality vs taxonicity of schizotypy: some new data and challenges ahead. *Schizophrenia bulletin*, *41*(suppl_2), S465-S474.

Fenigstein, A., & Vanable, P. A. (1992). Paranoia and self-consciousness. *Journal of personality and social psychology*, *62*(1), 129.

Freeman, D., Garety, P. A., Bebbington, P. E., Smith, B., Rollinson, R., Fowler, D., ... & Dunn, G. (2005). Psychological investigation of the structure of paranoia in a non clinical population. *The British Journal of Psychiatry*, *186*(5), 427-435.

Haslam, N., Holland, E., & Kuppens, P. (2012). Categories versus dimensions in personality and psychopathology: a quantitative review of taxometric research. *Psychological medicine*, *42*(5), 903-920.

Kay, S. R., Fiszbein, A., & Opler, L. A. (1987). The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophrenia bulletin*, *13*(2), 261-276.

Lawrie, S. M., Hall, J., McIntosh, A. M., Owens, D. G., & Johnstone, E. C. (2010). The 'continuum of psychosis': scientifically unproven and clinically impractical. 197, 423-425.

Lenzenweger, M. F. (2011). Schizotypy and schizophrenia: The view from experimental psychopathology. New York, NY, US: Guilford Press.

Linscott, R. J., Marie, D., Arnott, K. L., & Clarke, B. L. (2006). Over-representation of Maori New Zealanders among adolescents in a schizotypy taxon. *Schizophrenia Research*, *84*(2), 289-296.

Linscott, R. J., Allardyce, J., & van Os, J. (2009). Seeking verisimilitude in a class: a systematic review of evidence that the criterial clinical symptoms of schizophrenia are taxonic. *Schizophrenia bulletin*, *36*(4), 811-829.

Meehl, P. E. (1995). Bootstraps taxometrics: Solving the classification problem in psychopathology. *American Psychologist*, *50*(4), 266.

Meehl, P. E., & Yonce, L. J. (1994). Taxometric analysis: I. Detecting taxonicity with two quantitative indicators using means above and below a sliding cut (MAMBAC procedure). *Psychological reports*.74 (3), 1059-1274.

Melo, S., Corcoran, R., Shryane, N., & Bentall, R. P. (2009). The persecution and deservedness scale. *Psychology and Psychotherapy: Theory, Research and Practice*, *82*(3), 247-260.

Morrison, A. P., French, P., Stewart, S. L., Birchwood, M., Fowler, D., Gumley, A. I., ... & Patterson, P. (2012). Early detection and intervention evaluation for

people at risk of psychosis: multisite randomised controlled trial. *Bmj*, *344*, e2233.

Morrison, A. P., Shryane, N., Beck, R., Heffernan, S., Law, H., McCusker, M., & Bentall, R. P. (2013). Psychosocial and neuropsychiatric predictors of subjective recovery from psychosis. *Psychiatry research*, *208*(3), 203-209.

Morton, S. E., O'Hare, K. J., Maha, J. L., Nicolson, M. P., Machado, L., Topless, R., ... & Linscott, R. J. (2017). Testing the validity of taxonic schizotypy using genetic and environmental risk variables. *Schizophrenia bulletin*, *43*(3), 633-643.

Moutoussis, M., Williams, J., Dayan, P., & Bentall, R. P. (2007). Persecutory delusions and the conditioned avoidance paradigm: towards an integration of the psychology and biology of paranoia. *Cognitive Neuropsychiatry*, *12*(6), 495-510.

Pickering, L., Simpson, J., & Bentall, R. P. (2008). Insecure attachment predicts proneness to paranoia but not hallucinations. *Personality and Individual Differences*, *44*(5), 1212-1224.

Poulton, R., Caspi, A., Moffitt, T. E., Cannon, M., Murray, R., & Harrington, H. (2000). Children's self-reported psychotic symptoms and adult schizophreniform disorder: a 15-year longitudinal study. *Archives of general psychiatry*, *57*(11), 1053-1058.

Reininghaus, U., Böhnke, J. R., Hosang, G., Farmer, A., Burns, T., McGuffin, P., & Bentall, R. P. (2016). Evaluation of the validity and utility of a transdiagnostic psychosis dimension encompassing schizophrenia and bipolar disorder. *The British Journal of Psychiatry*, 209(2), 107-113.

Ruscio, J. (2016). *Taxometric programs for the R computing environment: User's manual.* Available at http://ruscio.pages.tcnj.edu/quantitative-methods program-code/.

Ruscio, J., Haslam, N., & Ruscio, A. (2006). Introduction to the Taxometric Method. Mahwah.

Ruscio, J., Ruscio, A. M., & Meron, M. (2007). Applying the bootstrap to taxometric analysis: Generating empirical sampling distributions to help interpret results. *Multivariate Behavioral Research*, *42*(2), 349-386.

Sellwood, W., Morrison, A. P., Beck, R., Heffernan, S., Law, H., & Bentall, R. P. (2013). Subjective cognitive complaints in schizophrenia: relation to antipsychotic medication dose, actual cognitive performance, insight and symptoms. *PLoS one*, *8*(12), e83774.

Udachina, A., Thewissen, V., Myin-Germeys, I., Fitzpatrick, S., O'kane, A., & Bentall, R. P. (2009). Understanding the relationships between self-esteem, experiential avoidance, and paranoia: structural equation modelling and experience sampling studies. *The Journal of nervous and mental disease*, *197*(9), 661-668.

Udachina, A., Varese, F., Myin-Germeys, I., & Bentall, R. P. (2014). The role of experiential avoidance in delusions of paranoia: an experience sampling study. *British Journal of Clinical Psychology*, *53*(4), 422-432.

van Os, J., & Kapur, S. (2009). Schizophrenia. *The Lancet*, *374*(9690), 635-645.

Varese, F., Barkus, E., & Bentall, R. P. (2011). Dissociative and metacognitive factors in hallucination-proneness when controlling for comorbid symptoms. *Cognitive Neuropsychiatry*, *16*(3), 193-217.

Varese, F., Barkus, E., & Bentall, R. P. (2012). Dissociation mediates the relationship between childhood trauma and hallucination-proneness. *Psychological medicine*, *42*(5), 1025-1036.

Wagner, B., Horn, A. B., & Maercker, A. (2014). Internet-based versus face-to-face cognitive-behavioral intervention for depression: a randomized controlled non-inferiority trial. *Journal of affective disorders*, *152*, 113-121.

Waller, N. G., & Meehl, P. E. (1998). *Multivariate taxometric procedures: Distinguishing types from continua*. Sage Publications, Inc.

Walters, G. D., & Ruscio, J. (2010). Where do we draw the line? Assigning cases to subsamples for MAMBAC, MAXCOV, and MAXEIG taxometric analyses. *Assessment*, *17*(3), 321-333.

Wickham, S., Sitko, K., & Bentall, R. P. (2015). Insecure attachment is associated with paranoia but not hallucinations in psychotic patients: the mediating role of negative self-esteem. *Psychological Medicine*, *45*(7), 1495-1507.

Yung, A. R., Yung, A. R., Pan Yuen, H., Mcgorry, P. D., Phillips, L. J., Kelly, D., ... & Stanford, C. (2005). Mapping the onset of psychosis: the comprehensive assessment of at-risk mental states. *Australian & New Zealand Journal of Psychiatry*, *39*(11-12), 964-971.

Chapter 4: The Social Identity Theory and Paranoia[2]

[2] Parts of this chapter are from the following published article: McIntyre, J. C., Elahi, A., & Bentall, R. P. (2016). Social identity and psychosis: Explaining elevated rates of psychosis in migrant populations. *Social and Personality Psychology Compass, 10*(11), 619-633. (see Appendix B)

4.1 Applying the Social Identity Theory to Paranoia

In the preceding chapter, and in line with previous research (Freeman et al., 2005; Bebbington et al., 2013), clinical levels of paranoia were found to exist on a continuum with healthy functioning. This supports the notion that paranoid beliefs are common in the population and that clinical levels of paranoia sit at the extreme end of this continuum. Therefore, theories that attempt to explain the antecedents or psychology of paranoia, or reduce clinical levels of paranoia, will benefit from looking at the ways in which paranoia manifests in the general population. A further implication of this finding is that it raises the possibility that severe paranoia arises from everyday social concerns and interactions. Because of this, it makes sense to apply social-psychological approaches to help aid the understanding of paranoid symptomology.

As noted by McIntyre, Elahi and Bentall (2016), one social approach which has been applied to both physical and mental health (S. Haslam, Jetten, Postmes & C. Haslam 2009; Jetten, Haslam & Alexander, 2012) is the Social Identity Approach (SIA: Haslam, 2004; Postmes & Branscombe, 2010). As detailed in Chapter 1, the SIA is made up of two influential theories: the Self-Categoristation Theory (SCT: Turner, Hogg, Oakes, Reicher & Wetherell, 1987) and the Social Identity Theory (SIT; Tajfel & Turner, 1979). These two theoretical frameworks emerge from the same philosophical perspective and are often used in unison to examine social-psychological phenomena. The SCT emphasises individual processes; in particular, how people develop self-concepts based on the groups to which they feel they belong to (e.g. academic, woman, human). The SIT, on the other hand, focuses on intergroup processes and outlines how identification with groups and concepts contributes to differences in attitudes and behaviours towards ingroups (‘us’) and outgroups (‘them’).

A fundamental component of SCT is the idea that self-categorisation can occur at several levels: superordinate, intermediate and subordinate. The superordinate level involves people seeing themselves as part of humanity (human identity). The intermediate level (social identity) involves individuals identifying as a member of a social group (‘us’) that is distinct from other social groups (‘them’). The subordinate level (personal identity) refers to individual self-categorisation, for example, identifying as an extrovert. Hornsey and Hogg (2000) note that the intermediate or social level of self-categorisation can be broken down into finer gradients. It has also

been suggested that the categories are dynamic because they can change over both time and contexts (Turner, Oakes, Haslam & McGarthy, 1994). For example, when a teacher who is born in England but of Italian heritage is teaching in an English school, they may strongly identify as being English. However, when they are with their Italian family, their tendency to categorise themselves as English might wane. Changes in identity are also reported to be functionally dependent ('functional antagonism'). This refers to the notion that if one identity becomes more salient for an individual, the saliency the individual attributes to other identities will decline (Turner et al., 1987).

Self-categorisation may also be a result of the Social Labelling Theory (SLT: Waxler, 1974). This theory suggests that individuals embrace and act in accordance with the 'labels' that others give them. This is known as a self-fulfilling prophecy and was evident in a renowned study by Rosenthal and Jacobson (1968). In the study, some students were randomly labelled as 'bloomers'. It was found that these students actually performed better in subsequent assessments despite no original differences between the two groups on their academic performance. Therefore, the students had categorised themselves in accordance with the labels which were given to them.

Self-categorisations define self-concepts at a given point in time and give rise to equally dynamic social identities. The SIT suggests that depending on the salience of different social identities, individuals' behaviour towards ingroup and outgroup members may change. For example, it has been demonstrated that ingroup preference is shown when individuals are assigned to meaningless random groups (Tajfel, Billig, Bundy & Flament, 1971). In a classic demonstration of the power of social groups, participants in Tajfel and colleagues' study were asked to estimate the number of dots in a series of images. Depending on their tendency to overestimate or underestimate the number of dots, participants were then ostensibly assigned to groups.

However, in reality, the allocation of participants was completely random. Participants were asked to allocate varying rewards to the two groups and it was found that they consistently favoured the group to which they were allocated. The participants favoured their ingroup, not by selecting their group to ensure they had maximum profit but by opting for *maximum difference* between their ingroup and the outgroup. This effect has been replicated many times (see Hornsey, 2008). An ingroup bias was present even when participants did not know one another, there was no interaction with ingroup or outgroup members, there was no personal advantage to be gained from favouring the ingroup and the basis of the groups was arbitrary. The SIT

also suggests that individuals are able to improve their personal self-image and maintain a positive sense of self by making social comparisons, such as viewing ingroups positively and outgroups negatively and exaggerating the differences between ingroups and outgroups.

As people categorise themselves very easily and favour their own category, it is easy for individuals to develop strong social identities. Social identities can be bound to social groups, for example, neighbourhoods and schools, or to larger social categories, such as genders and nationalities. It has been found that one of the reasons individuals' favour their ingroups is to maintain their self-esteem, such that identifying with positively valued groups promotes a positive view of the self (Jetten et al., 2015). However, an individual's self-esteem may decrease and low levels of self-esteem have been linked to mental health issues (McIntyre, Wickham, Barr & Bentall, 2017), thus it may be speculated that a decrease in self-esteem is one way that the SIT explains mental health symptoms.

The SIA can be further implicated in mental health when individuals identify with a negatively valued group as this may cause self-stigmatising. Self-stigmatising refers to an individual being aware that their group is negatively stereotyped against and internalising these views and it is often a problem faced by patients suffering from severe mental illnesses (Corrigan, Watson & Barr, 2006). This type of self-categorisation with stigmatised groups has also been shown to impede long-term recovery from mental illness (Vass et al., 2015). Previous literature has also found that the loss of identities can also negatively impact mental health. Jetten, O'Brien and Trindall (2002) found that when individuals lost their social identity due to a work team restructure, both their mental health and well-being suffered.

The vast majority of empirical research concerning social identity and mental health, thus far, specifically focusses on depression with strong group identification being linked to a lower risk of depression (Cruwys, Dingle, C. Haslam, S. Haslam, Jetten & Morton, 2013). Sani, Herrera, Wakefield, Boroch and Gulyas (2012) found that, amongst a sample of Eastern European adults, family identification or identification with an army unit that participants were working in were stronger predictors of depressive symptoms than social contact with the respective groups. Additionally, across a large representative study of 1,824 Scottish adults, it was concluded that the strong identification with social groups predicted symptoms of

depression, with strong identification predicting lesser symptoms (Sani, Madhok, Norbuy, Dugard & Wakefield, 2015).

It has also been found that people who joined a new social group were likely to report an improvement in depressive symptoms after a three-month follow-up. Interestingly, the strongest predictor of depressive symptoms after the three months was not participants' initial symptom severity, the frequency of participants' attendance at the group or which group they chose to attend but it was the strength of their social identification with that group that best predicted reduced symptoms of depression (Cruwys et al., 2014). Therefore, there is strong support for the importance of social identification in the emergence and maintenance of depressive symptoms.

As well as being linked to depression, McIntyre et al. (2017) found that strong social identification was associated with reduced levels of anxiety. Additionally, in a sample of females over the age of 18 who reported high levels of social identification, trait anxiety was found to negatively correlate with social connectedness (Lee & Robbins, 1998). Further support of the link between anxiety and social identities was found in the G4H study (Haslam, C., Cruwys, Milne, Kan, & Haslam, S.A. 2016). Participants demonstrated improvements in their anxiety levels on completion of the program and after six months. According to Haslam and colleagues, this improvement was due to participants identifying with the G4H group as well as other groups.

Strong social identification has also been found to reduce stress when participants were under extreme levels of strain; patients recovering from heart surgery, bomb disposal officers and bar staff (Haslam, O'brien, Jetten, Vormedal & Penna, 2005). Thus, it is plausible that social identity acts as a buffer against the adverse psychological symptoms associated with stressful situations. Indeed, social identification has been shown to lower cortisol (stress) responses to social stressors (Häusser, Kattenstroth, van Dick, & Mojzisch, 2012).

More recently, researchers have been investigating the link between social identification and paranoia. (Sani, Wakefield, Herrera, & Zeybek, 2017; McIntyre et al., 2017; Thomas, Bentall, Hadden & O'Hara, 2017). Sani et al. (2017) reported a negative relationship between family identification and paranoid ideation in a two-part study utilising non-clinical samples; one adopting a cross-sectional design examining Cypriot students, and the other comprising a longitudinal design assessing Spanish students. The second of these studies also illustrated that strong family identification predicted paranoia over time.

McIntyre et al. (2017) examined whether identifying with one's neighbourhood protected individuals from higher levels of mental health symptoms, including paranoia. Across two samples (a general population sample and a student sample) it was concluded that neighbourhood identification was found to reduce levels of paranoia by heightening individuals' levels of self-esteem. Thus, not only was a relationship between social identification and paranoia reported but this was the first study to assess a psychological mechanism (self-esteem) which may be involved in the relationship.

Thomas and colleagues (2017) assessed a sample of female University students in Abu Dhabi, United Arab Emirate (UAE). The students were studying in a university which adopted the American curriculum and American values. Therefore, their Emirati and American identities were assessed implicitly. Whilst explicit assessment involves the participants directly being asked about the strength of their identification, an implicit assessment involves participants identities being assessed without accessing their conscious awareness (see Chapter 7 for a more detailed description of the measure that was utilised). It was found that implicit Emirati identification was associated with lower levels of paranoia among the students. However, implicit American identification was associated with higher levels of paranoia. This suggests that the participants needed to strongly identify with their surroundings and place of residence to experience low levels of paranoia. Despite this encouraging research, much more research needs to be conducted to further examine social identity-paranoia relationships. For example, there is comparatively little knowledge of whether these effects extend to particular sections of the general population (such as ethnic minority groups) or about the psychological processes by which identification might affect paranoia.

Additionally, despite such research, a stress-buffering model of social identity and paranoia has not been empirically tested. The next chapter examines whether social identification protects people from developing symptoms of paranoia that are associated with financial stress which is a common social stressor. This research could have several implications. For example, austerity in Britain over the last decade has led to considerable financial stress for people living here, and economic uncertainty relating to Brexit may mean that this is set to continue. As such, understanding whether social identification can buffer against mental health difficulties associated with

financial stress, and the potentially detrimental effect that paranoia can have on social cohesion, is an important area of investigation.

4.2 References

Bebbington, P. E., McBride, O., Steel, C., Kuipers, E., Radovanovič, M., Brugha, T., ... & Freeman, D. (2013). The structure of paranoia in the general population. *The British Journal of Psychiatry*, bjp-bp. 112.119032.

Corrigan, P. W., Watson, A. C., & Barr, L. (2006). The self–stigma of mental illness: Implications for self–esteem and self–efficacy. *Journal of social and clinical psychology*, *25*(8), 875-884.

Cruwys, T., Dingle, G. A., Haslam, C., Haslam, S. A., Jetten, J., & Morton, T. A. (2013). Social group memberships protect against future depression, alleviate depression symptoms and prevent depression relapse. *Social Science & Medicine*, *98*, 179-186.

Cruwys, T., Haslam, S. A., Dingle, G. A., Jetten, J., Hornsey, M. J., Chong, E. D., & Oei, T. P. (2014). Feeling connected again: Interventions that increase social identification reduce depression symptoms in community and clinical settings. Journal of affective disorders, 159, 139-146.

Freeman, D., Garety, P. A., Bebbington, P. E., Smith, B., Rollinson, R., Fowler, D., ... & Dunn, G. (2005). Psychological investigation of the structure of paranoia in a non-clinical population. *The British Journal of Psychiatry*, *186*(5), 427-435.

Haslam, S. A. (2004). *Psychology in organizations*. Sage.

Haslam, C., Cruwys, T., Milne, M., Kan, C. H., & Haslam, S. A. (2016). Group ties protect cognitive health by promoting social identification and social support. *Journal of aging and health*, *28*(2), 244-266.

Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: an emerging agenda for applied psychology. *Applied Psychology*, *58*(1), 1-23.

Haslam, S. A., O'brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British Journal of Social Psychology*, *44*(3), 355-370.

Häusser, J. A., Kattenstroth, M., van Dick, R., & Mojzisch, A. (2012). "We" are not stressed: Social identity in groups buffers neuroendocrine stress reactions. *Journal of Experimental Social Psychology*, *48*(4), 973-977.

Hornsey, M. J. (2008). Social identity theory and self-categorization theory: A historical review. *Social and Personality Psychology Compass*, *2*(1), 204-222.

Hornsey, M. J., & Hogg, M. A. (2000). Assimilation and diversity: An integrative model of subgroup relations. *Personality and Social Psychology Review*, *4*(2), 143-156.

Jetten, J., Branscombe, N. R., Haslam, S. A., Haslam, C., Cruwys, T., Jones, J. M.,... & Thai, A. (2015). Having a lot of a good thing: Multiple important group memberships as a source of self-esteem. *PloS one*, *10*(5), e0124609.

Jetten, J., Haslam, C., & Alexander, S. H. (Eds.). (2012). *The Social Cure: Identity, Health and Well-Being*. Psychology Press.

Jetten, J., O'Brien, A., & Trindall, N. (2002). Changing identity: Predicting adjustment to organizational restructure as a function of subgroup and superordinate identification. *British Journal of Social Psychology*, *41*(2), 281-297.

Lee, R. M., & Robbins, S. B. (1998). The relationship between social connectedness and anxiety, self-esteem, and social identity.

McIntyre, J. C., Elahi, A., & Bentall, R. P. (2016). Social identity and psychosis: Explaining elevated rates of psychosis in migrant populations. *Social and Personality Psychology Compass*, *10*(11), 619-633.

McIntyre, J. C., Wickham, S., Barr, B., & Bentall, R. P. (2017). Social Identity and Psychosis: Associations and Psychological Mechanisms. *Schizophrenia Bulletin*. *44*(3), 681-690.

Postmes, T., & Branscombe, N. R. (Eds.). (2010). *Rediscovering social identity*. Hove: Psychology.

Rosenthal, R., & Jacobson, L. (1968). Pygmalion in the classroom. *The urban review*, *3*(1), 16-20.

Sani, F., Herrera, M., Wakefield, J. R., Boroch, O., & Gulyas, C. (2012). Comparing social contact and group identification as predictors of mental health. *British Journal of Social Psychology*, *51*(4), 781-790.

Sani, F., Madhok, V., Norbury, M., Dugard, P., & Wakefield, J. R. (2015). Greater number of group identifications is associated with healthier behaviour: Evidence from a Scottish community sample. *British Journal of Health Psychology*, *20*(3), 466-481.

Sani, F., Wakefield, J. R., Herrera, M., & Zeybek, A. (2017). On the Association between Greater Family Identification and Lower Paranoid Ideation among Non-Clinical Individuals: Evidence from Cypriot and Spanish Students. *Journal of Social and Clinical Psychology*, *36*(5), 396-418.

Tajfel, H., Billig, M. G., Bundy, R. P., & Flament, C. (1971). Social categorization and intergroup behaviour. *European journal of social psychology*, *1*(2), 149-178.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The social psychology of intergroup relations*, *33*(47), 74.

Thomas, J., Bentall, R. P., Hadden, L., & O'Hara, L. (2017). Ethnic identity and paranoid thinking: Implicit out-group preference and language dominance predict paranoia in Emirati women. *Journal of behavior therapy and experimental psychiatry*, *56*, 122-128.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Basil Blackwell.

Turner, J. C., Oakes, P. J., Haslam, S. A., & McGarty, C. (1994). Self and collective: Cognition and social context. *Personality and social psychology bulletin*, *20*(5), 454-463.

Vass, V., Morrison, A. P., Law, H., Dudley, J., Taylor, P., Bennett, K. M., & Bentall, R. P. (2015). How stigma impacts on people with psychosis: The mediating effect of self-esteem and hopelessness on subjective recovery and psychotic experiences. *Psychiatry research*, *230*(2), 487-495.

Waxler, N. E. (1974). Culture and mental illness: A social labeling perspective. *Journal of Nervous and Mental Disease*.

Chapter 5: Home is where you hang your hat: Host town identity, but not hometown identity, protects against paranoia associated with financial stress[3]

[3] This paper has been published as: Elahi, A., McIntyre, J. C., Hampson, C., Bodycote, H. J., Sitko, K., White, R. G., & Bentall, R. P. (2018). Home Is Where You Hang Your Hat: Host Town Identity, But Not Hometown Identity, Protects Against Mental Health Symptoms Associated with Financial Stress. *Journal of Social and Clinical Psychology*, *37*(3), 159-181. (see Appendix C)

5.1 Abstract

Debt and financial insecurity are associated with stress, low self-worth and poor health. Joining and identifying with social groups (social identification) promotes better health and higher levels of self-esteem. Here, I examined whether identifying with one's local neighbourhood protected people from developing symptoms of paranoia associated with financial stress. I analysed data from a general population survey (Study 1, N=4319) and a student mental health survey (Study 2, N=612) conducted in the North West of England. Measures of financial stress, self-esteem, neighbourhood identity and paranoia were administered, and moderated mediation analyses were conducted to test the predictions. Study 1 (population survey) demonstrated that stronger identification with one's local neighbourhood attenuated the adverse effects of financial stress on self-esteem and subsequent levels of paranoia. Study 2 (student survey) showed that strong host town identities buffered students from paranoia that was associated with financial stress. Strong hometown identities, however, showed no buffering effect. The findings suggest that one way that financial stress impacts levels of paranoia is by eroding self-esteem. Identifying with one's current place of residence appears to disrupt this pathway, whilst identifying with one's previous place of residence does not provide the same psychological protection.

5.2 Introduction

The need to belong to groups has been described as a fundamental human drive (Baumeister & Leary, 1995). Incorporating social groups into one's sense of self, through the process of social identification, has been shown to protect people against poor mental health and low well-being (Haslam, Jetten & Waghorn, 2009). There is also evidence to suggest that identifying with social groups reduces stress and shapes the way people appraise stressful situations (Haslam, O'brien, Jetten, Vormedal & Penna, 2005). Identification may thus provide psychological resilience during times of stress and adversity, such as unemployment or rising debt. Indeed, stress and associated mental health issues stemming from economic deprivation represent a global problem (Lund et al., 2010) that is likely to worsen if economic inequalities persist. It is therefore imperative that the processes that lead from financial stress to mental health difficulties and how this pathway can be disrupted is understood to reduce paranoia that is associated with financial stress. Previous research has suggested that identifying strongly with social groups may protect people against paranoid beliefs (Sani, Wakefield, Herrera, & Zeybek, 2017; Thomas, Bentall, Hadden, & O'Hara, 2017; McIntyre, Wickham, Barr, & Bentall, 2017). However, no research has tested this hypothesis in the context of a stress-buffering model. In the present work, I examine whether financial stress is associated with higher levels of paranoia and whether social identification attenuates this association.

According to Lazarus and Folkman (1984), stress can be conceptualised as an appraisal of harm, threat or challenge. Research has reported consistent associations between stressful life experiences and poor mental health (Williams, Yu, Jackson & Anderson, 1997; Meyer, 2003), and the effects can be severe enough to lead to depression, suicidal ideation, and psychosis (Hovey & King, 1996; Ciarrochi, Deane & Anderson, 2002; Wilburn & Smith, 2005; Richardson, Elliot & Roberts, 2013). At the present time, there is good reason for concern about the prevalence and impact of financial stress. Indeed, despite more cautious borrowing since the 2008 financial crises in the US and Europe, global private liabilities have continued to increase and totalled EUR 35.2 trillion in 2014 (Brandmeir, Grimm, Heise, & Holzhausen, 2015). The negative health consequences of this kind of unsecured debt have been well documented (see Richardson et al. 2013). The factors that explain and mitigate these effects, however, are not well understood. The present research examines whether identifying with one's local neighbourhood protects against the adverse effects of

financial stress on symptoms of paranoia. Further, I will test whether host town neighbourhood identities provide similar psychological resilience during times of financial strain.

5.2.1 The Impact of Financial Stress on Self-esteem and Paranoia

It has been suggested that self-esteem represents a disparity between the actual and ideal self (Harter, 1990; Block & Robins, 1993), which is reflected in an individual's positive or negative self-evaluations (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). For example, adolescents with low self-esteem suffer from worse mental health symptoms compared to their counterparts who have higher self-esteem (Roberts, Gotlib & Kassel, 1996). Past research has identified links between low self-esteem and psychotic symptoms, including episodes of paranoia (Thewissen et al., 2011). Moreover in studies examining symptoms of psychosis, patients with symptoms of paranoia (persecutory beliefs) have been found to have low (Wickham, Sitko & Bentall, 2015) and highly unstable (Thewissen, Bentall, Lecomte, van Os, & Myin-Germeys, 2008) self-esteem. These negative beliefs about the self-maintain paranoia over time (Fowler et al., 2011) and predict poorer recovery from symptoms (Trzesniewski, Donnellan, Moffitt, Robins, Poulton & Caspi, 2006). Critically, fluctuations in self-esteem have been shown to precede episodes of paranoia, suggesting a potential causal pathway from low self-esteem to paranoid thoughts (Thewissen et al., 2008).

It is plausible that some of the effects of financial stress on paranoia are mediated by the deterioration of self-esteem. The evidence relating to debt and self-esteem has been inconsistent. Some studies suggest that the level of debt people are in may be unrelated to self-esteem (Crocker & Luhtanen 2003; Pinto, Mansfield, & Parente, 2004). Dwyer, McCloud and Hodson (2011) suggest that debt increases self-esteem because debt is often the result of a positive investment. However, stress associated with debt is more consistently associated with lower self-worth (Krause, Jay & Liang, 1991; E. Diener, & M. Diener, 1995; Mayhew & Lempers, 1998). In a prospective study of veterans aged between 35 and 60 years, self-esteem and mental health was measured in groups of employed and unemployed men (Linn, Sandifer, & Stein, 1985). Unemployment was found to be associated with higher levels of depression and anxiety. However, wide variation in the self-esteem of the unemployed participants suggested that some men were more resilient to self-esteem deficits following unemployment. Despite levels of paranoia not being assessed in this study,

it was clearly evident that self-esteem played a pivotal role in the emergence of mental health symptoms. The present study was undertaken to determine whether social identification plays a part in promoting resilience to the potential impact of financial stress on levels of paranoia, through levels of self-esteem.

5.2.2 Social Identity as a Protective Factor

The term *social identity* refers to the sense of self that develops when thinking about oneself as part of a social group (Tajfel, 1972). When people feel connected to positive and cohesive social groups, and incorporate these groups into their identity, it provides a sense of purpose and meaning (Dingle, Brander, Ballantyne, & Baker, 2013). Research on the effects of social identification on health has increased exponentially over the last decade, and findings suggest that joining and identifying with groups is associated with better physical health and improved well-being (Haslam et al., 2009), better cognitive functioning (C. Haslam, Cruwys, Milne, Kan, & S. Haslam, 2016), as well as a lower risk of depression (Cruwys, Dingle, C. Haslam, S. Haslam, Jetten, & Morton, 2013; Cruwys, S. Haslam, Dingle, C. Haslam, & Jetten, 2014) and lower levels of paranoia (McIntyre et al., 2017; Sani et al., 2017).

It is likely that the positive effects of social identification on mental health are the result of the boost to self-esteem which is experienced by high identifiers. As proposed by Tajfel and Turner (1979) being part of a group, that is important to an individual, provides the individual with a more positive sense of self. Consistent with this assertion, in a study comprising of African-American participants, it was found that identifying with groups that are valued increased both personal and collective self-esteem (Branscombe, Schmitt & Harvey 1999). Similar results have been observed among older adults, children, and homeless people (Jetten et al., 2015), as well as in a longitudinal study assessing students' self-esteem (Iyer, Jetten, Tsivrikos, Postmes & Haslam, 2009). Thus, past research suggests that social identities buffer against mental health difficulties by fostering self-esteem.

Whereas previous research has explored the relationships between health and identification with groups such as families, sporting teams, workplaces, recreation groups, and universities (see Cruwys et al., 2014), comparatively little research has focused on the impact of location-based identities on health and wellbeing. With substantial sections of the population lacking financial resources or confidence to join recreation groups, and/or having no access to occupational or educational settings,

neighbourhood identification may be one form of identity within society that people retain access to regardless of their financial situation.

5.2.3 The Present Research

Here, I assessed whether neighbourhood identification attenuated the negative effects of financial stress on self-esteem and paranoia. This was tested using two existing datasets. The first was a large household health survey conducted in North West England (Study 1), and the second was a student mental health survey conducted in universities across England and Wales (Study 2). Given the reviewed evidence that social identification improves mental health by bolstering self-esteem, and that financial stress is associated with negative self-concepts and poor mental health, I hypothesised that strong neighbourhood identification would attenuate the negative impact of financial stress on self-esteem and subsequent levels of paranoia.

5.3 Study 1 Methods

5.3.1 Participants

The survey was conducted as part of the National Institute of Health Research Collaboration for Leadership in Applied Health Research and Care North West Coast (NIHR CLAHRC NWC). In conjunction with local authorities, NHS partners and public advisors, a comprehensive health and wellbeing survey was designed. A total of 4319 participants from households across the North West of England were recruited between August 2015 and January 2016. The sample consisted of 1854 (43%) men and 2465 (57%) women whose ages ranged from 18 to 95 years (M = 49.12, SD = 19.13). The adjusted response rate (excluding addresses where no one was home) for the study was 61%. The majority of participants (89%) indicated that they were of a White European ethnic background. All respondents were reimbursed with a £10 voucher in return for their participation.

5.3.2 Sampling Procedure

The NIHR CLAHRC NWC survey was conducted to provide a baseline assessment to support the development and evaluation of area-based interventions that promote health and wellbeing. The sampling procedure reflected this objective. A random probability sample was taken from 10 high deprivation intervention areas, 10 matched comparator high deprivation areas, and 8 low deprivation areas. Three times as many addresses as was required to achieve the target sample for each area were randomly selected using the postcode address file. Sample targets were 200 for the intervention areas, 150 for the high deprivation comparator areas, and 100 for the low

deprivation areas. These sample targets were met within a 5% tolerance (see McIntyre et al., 2017 for a more detailed description of the sampling procedure).

5.3.3 Measures

5.3.3.1 Financial stress

Financial stress was measured with an item sourced from the Work, Attitudes, and Spending Survey (WAS; Office for National Statistics, 2016). Participants were asked to indicate on a three-point scale how well their household was managing financially these days. Response options were: 1 = *doing well*, 2 = *getting by*, 3 = *struggling*.

5.3.3.2 Neighbourhood identity

Neighbourhood identity was measured using a single-item from the UK Community Life Survey (2015). Participants indicated on a four-point scale the extent to which they felt they belonged to their immediate neighbourhood, with neighbourhood defined to participants as "your street or block". Response options ranged from 1 = *not at all strongly* to 4 = *very strongly*. The item taps into the sense of group belonging, which has been implicated in the centrality (Sellers, Smith, Shelton, Rowley, & Chavous, 1998), satisfaction (Luhtanen & Crocker, 1992) and solidarity (Ellemers, Kortekaas, & Ouwerkerk, 1999) components of social identification.

5.3.3.3 Self-esteem

Participants completed a single self-esteem item (Robins, Hendin, & Trzesniewski, 2001). Participants indicated on a seven-point scale how true or untrue the statement "I have high self-esteem" was for them, 1 = *not very true of me*, 7 = *very true of me*.

5.3.3.4 Paranoia

Paranoia was assessed with five items taken from the persecution subscale (10-item P scale, see Chapter 3 for a more detailed description) of the Persecution and Deservedness scale (PaDS; Melo, Corcoran, Shryane, & Bentall, 2009). The same five items were used in McIntyre et al., (2017) who found that the five-item measure and full 10-item measure were highly correlated (0.94). Participants rated their agreement on a five-point scale with statements such as "I'm often suspicious of other people's intentions towards me" and "You should only trust yourself". Response options ranged from 1 = *strongly disagree* to 5 = *strongly agree*. The level of internal consistency for the scale was satisfactory (α=.84).

5.3.3.5 Demographic variables

Participants were asked to indicate their age (1 to 10 in age bands) and gender (coded as 1 = *male*, 2 = *female*).

5.3.4 Statistical Analyses

Descriptive statistics and bivariate correlations were calculated between the key variables: financial stress, self-esteem, neighbourhood identity and paranoia. This was followed by a moderation mediation analysis. The moderated mediation analysis was conducted using model 7 of the PROCESS extension (Hayes, 2012) in SPSS to test whether the indirect effect of financial stress on paranoia through self-esteem was moderated by neighbourhood identity (see Figure 5.1). Indirect effects were calculated via bootstrapping with 1000 resamples and are reported at +/- 1 SD of neighbourhood identity. Gender and age were included in the model as covariates.

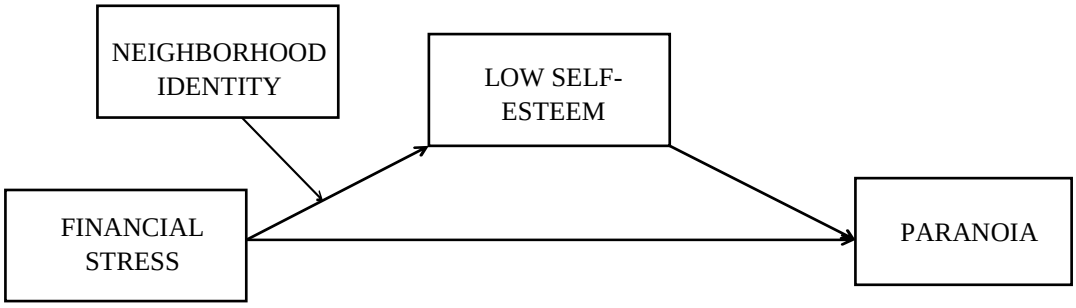


Figure 5.1. *Conceptual model of the moderated mediation effect being assessed in Study 1*.

5.4 Study 1 Results

5.4.1 Preliminary Analyses

Means, standard deviations and zero-order correlations are presented in Table 5.1. Financial stress was associated with lower self-esteem and higher paranoia scores. Neighbourhood identity was associated with higher self-esteem and lower paranoia scores. Paranoia was associated with lower self-esteem. All other associations were not significant.

Table 5.1. *Descriptive statistics and bivariate correlations between the variables in Study 1.*

Variable	***M***	***SD***	1	2	3	4
1. Financial stress	1.88	.59	-	-.22***	.17	.27***
2. Self-esteem	4.54	1.73	-	-	.10***	-.30***
3. Neighbourhood identity	3.16	.83	-	-	-	-.14***
4. Paranoia	1.95	.87	-	-	-	-

*** $p < .001$

5.4.2 Moderated Mediation Analyses

Table 5.2 shows the unstandardized effects in the regression model predicting levels of paranoia. Financial stress was entered as the independent variable, neighbourhood identification as the moderator and self-esteem as the mediator. Table 5.2 demonstrates the effects of financial stress, neighbourhood identity, self-esteem, paranoia, gender and age when all other variables in the model are held constant. Table 5.2 also illustrates the interactive effect of financial stress and neighbourhood identity on paranoia when self-esteem is tested as a mediator.

The first part of Table 5.2 illustrates the effect that self-esteem has on the variables. A negative association between self-esteem and financial stress is evident, suggesting that self-esteem is higher when financial stress is low. A negative association between self-esteem and gender is also evident which implies that males exhibited higher levels of self-esteem. Additionally, there is a negative association between age and self-esteem suggesting that younger participants had higher levels of self-esteem. The interaction between financial stress and neighbourhood identity was positively associated with self-esteem.

The next part of Table 5.2 examines the effect that paranoia has on self-esteem, financial stress, gender and age. Negative associations are apparent between paranoia and age, paranoia and gender and paranoia and self-esteem. This suggests that

participants who displayed the highest levels of paranoia were more likely to be young, male and exhibit low levels of self-esteem.

The final part of Table 5.2 highlights that the confidence intervals for the index of moderated mediation (IMM) did not cross zero. Inspection of the coefficients revealed that the positive indirect effect of financial stress on levels of paranoia via self-esteem was reduced at high levels of neighbourhood identification.

Table 5.2. *Unstandardised direct and indirect effects between financial stress, self-esteem, and paranoia at low (-1 SD) and high (+1 SD) neighbourhood identification in Study 1.*

			B	***(S.E.)***	***(95% CI)***
Self-esteem	On	Financial stress	-1.01***	.16	-1.33, -.69
		Neighbourhood identity	-.12	.10	-.32, .08
		Gender	-.13*	.05	-.23, -.03
		Age	-.07***	.01	-.09, -.04
		Financial Stress X Neighbourhood identity	.14**	.05	.05, .24
Paranoia	On	Self-esteem	-.13***	.01	-.14, -.11
Paranoia	On	Financial stress	.30***	.02	.26, .35
		Gender	-.05*	.03	-.10, -.01
		Age	-.03***	.01	-.04, -.01
Bootstrapped indirect effect at ***low*** Neighbourhood identity Financial stress → Self-esteem → Paranoia			.09*	.01	.07, .11
Bootstrapped indirect effect at ***high*** Neighbourhood identity Financial stress → Self-esteem → Paranoia			.06*	.01	.04, .07
Index of moderated mediation (IMM)			-.02*	.01	-.03, -.005

* $p < .05$, ** $p < .01$, *** $p < .001$

5.5 Study 2 Introduction

Study 1 found that the mediated effect of financial stress on levels of paranoia through self-esteem was significantly reduced, although not completely eliminated, when individuals from a general population sample identified strongly with their neighbourhoods. People typically move between neighbourhoods during their lifetimes and this may present challenges to neighbourhood identification. Study 2, therefore sought to study this effect in university students, a group that is particularly vulnerable to mental health issues (see Storrie, Ahern, & Tuckett, 2010). In Britain, students typically move some distance away from home to study and it has been observed that, when students make this transition, it may take them some time to establish their identity in their new environment (Iyer et al., 2009; Praharso, Tear, & Cruwys, 2017). This type of life changing transition can have a negative effect on a person's well-being (Haslam et al., 2009). However, according to the Social Identity Model of Identity Change (SIMIC; Jetten & Pachana, 2012), the potential negative impact of life transitions on health and well-being can be attenuated by positive social identification. I, therefore, tested whether new (or host town) identities were more protective than hometown identities against symptoms of paranoia which were associated with financial stress after the major life transition of starting university.

5.6 Study 2 Methods

5.6.1 Participants

A total of 612 students attending university in Northern England and Wales completed the survey online. Women comprised 64% of the sample and the age of respondents ranged from 17 to 53 years (M = 21.61, SD = 3.65). Fourteen percent of the sample identified as Black or belonging to another minority ethnic group. All participants who completed the survey were entered into a prize draw to win a gift voucher.

5.6.2 Measures

5.6.2.1 Financial stress

The Debt Worry Scale (Cooke, Barkham, Audin, Bradley, & Davy, 2004) consists of two items: "Are financial concerns a current issue?" and "To what extent does your debt worry you?" Participants responded on a five-point scale ranging from 1 = *not at all* to 5 = *a lot.* The two items were highly correlated r (552) = .74.

5.6.2.2 Hometown and host town identity

Participants responded to three items for each identity. The first two were derived from Doosje, Ellemers and Spears (1995): "I identify with [host town/hometown]" and "I feel strong ties with [host town/hometown]". The third item was taken from Study 1 and involved group belonging: "I feel a sense of belonging to [host town/hometown]". Host town was defined as the town or city where participants currently attended university. Hometown was defined as the town or city where participants had spent "the majority of your life". Both host town identity (α =.91) and hometown identity (α =.92) showed high internal consistency.

5.6.2.3 Self-esteem

The Brief Core Schema Scale (Fowler et al., 2006) assesses positive and negative attitudes about the self and others. This scale is designed to be used with individuals ranging from healthy participants to patients with psychosis. It has been used in many studies assessing beliefs about the self and others (e.g. Wearden, Peters, Berry, Barrowclough, & Liversidge, 2008). Analyses were limited to the twelve self-relevant items, which included six positive descriptors (e.g. "I am respected") and six negative descriptors (e.g. "I am weak"). Participants responded on a five-point scale ranging from, 0 = *do not believe* to 4 = *believe it totally*, α =.91.

5.6.2.4 Paranoia

Participants completed the same paranoia scale reported in Study 1.

5.6.2.5 Demographic variables

Demographic control variables were consistent with Study 1 with the exception of age which was measured continuously in years rather than in age bands. Participants were also asked whether they attended university in a different town to the place they reported as their hometown (0 = *same town*, 1 = *different town*).

5.6.3 Statistical Analyses

As in Study 1, descriptive statistics and bivariate correlations were calculated for the key variables in Study 2: financial stress, host town identity, hometown identity, self-esteem and paranoia. Four moderated mediation analyses were conducted to test whether the indirect effect of financial stress on paranoia through self-esteem was moderated by specific combinations of host town and hometown neighbourhood identity (see Figure 5.2). Model 9 of the PROCESS extension (Hayes, 2012) in SPSS was used. This model allows conditional indirect effects to be assessed at different levels of two moderators (mods) entered simultaneously (i.e. indirect

effects at: low mod1/low mod2, low mod1/high mod2, high mod1/low mod2, and high mod1/high mod2) As in Study 1, indirect effects were calculated via bootstrapping with 1000 resamples and are reported at low (-1 SD) and high (+1 SD) levels of host town and hometown identity. Age, gender, and whether participants did or did not attend university in their hometown were included in the models as covariates.

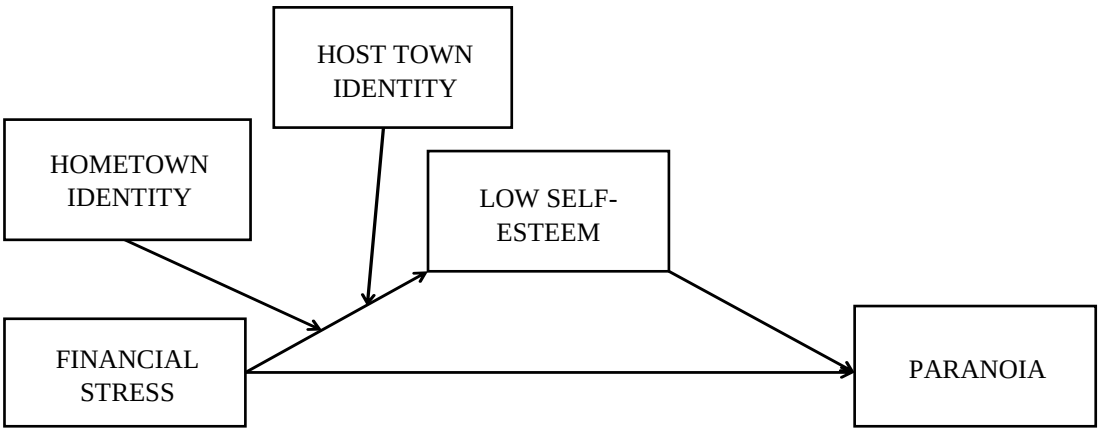


Figure 5.2. *Conceptual model of the moderated mediation effect being assessed in Study 2.*

5.7 Study 2 Results

5.7.1 Preliminary Analyses

Means, standard deviations and zero-order correlations are reported in Table 5.3. Of note, 455 (74%) of the 612 participants indicated that they attended university in a different town to their hometown. Correlational analyses indicated that financial stress was associated with lower self-esteem and higher levels of paranoia. Higher financial stress was also associated with weaker hometown identity. Both host town and hometown identities were associated with higher self-esteem and lower paranoia. Host town identities and hometown identities were positively associated. Higher self-esteem was associated with lower paranoia scores. All other associations were not significant.

Table 5.3. *Descriptive statistics and bivariate correlations between the variables in Study 2.*

Variable	***M***	***SD***	1	2	3	4	5
1. Financial stress	5.61	2.45	-	.04	-.13**	-.10*	.14**
2. Host town identity	14.52	4.30	-	-	.12**	.19***	-.16**
3. Hometown identity	14.92	5.01	-	-	-	.15**	-.16**
4. Self-esteem	16.79	5.24	-	-	-	-	-.42***
5. Paranoia	12.95	5.10	-	-	-	-	-

* $p < .05$, ** $p < .01$, *** $p < .001$

5.7.2 Moderated Mediation Analyses

As shown in Table 5.4, results indicated that the mediated effect of financial stress on paranoia through self-esteem was significant when host town identity was low, irrespective of hometown identification levels. However, there was no effect of financial stress on paranoia via self-esteem when host town identity was high, irrespective of hometown identity levels. The strongest effect of financial stress on paranoia levels was observed when there was a combination of low host town identity and high hometown identity. However, there is no evidence to suggest that the two significant results are statistically significantly different. It should be noted that these analyses were repeated excluding people who reported the same hometown and host town, rather than controlling for this variable. This did not affect the significance or the relative strengths of the effects. That is, the strongest mediated effect remained at low host town/high hometown neighbourhood identity for levels of paranoia.

Table 5.4. *Unstandardised indirect effects between financial stress, self-esteem, and paranoia at low (-1 SD) and high (+1 SD) host town and hometown identification in Study 2.*

	B	***(S.E.)***	***(95% CI)***
Indirect effect at ***low*** **host town identity** and ***low*** **hometown identity**			
Financial stress → Self-esteem → Paranoia	.21*	.09	.04, .39
Indirect effect at ***low*** **host town identity** and ***high*** **hometown identity**			
Financial stress → Self-esteem → Paranoia	.34*	.10	.16, .54
Indirect effect at ***high*** **host town identity** and ***low*** **hometown identity**			
Financial stress → Self-esteem → Paranoia	.02	.10	-.18, .20
Indirect effect at ***high*** **host town identity** and ***high*** **hometown identity**			
Financial stress → Self-esteem → Paranoia	.14	.08	-.01, .32

** 95% CIs do not include zero.*

5.8 Discussion

In two studies, it was tested whether social identification attenuates the negative effects of financial stress on self-esteem and subsequent levels of paranoia. In Study 1, data was analysed from a large sample of British residents and it was found that the mediated effect of financial stress on paranoia through self-esteem was attenuated at high levels of neighbourhood identification. In Study 2, data was assessed from a student mental health survey conducted in universities in England and Wales. Results showed that the mediated effect of financial stress on paranoia via self-esteem was present when people identified highly with their town of residence, but not when they identified highly with their hometown. The results also provided suggestive evidence that possessing a strong hometown identity may even be harmful when combined with low host town identity. Overall, the findings indicate that identifying with the place where you live protects against the harmful effects of financial stress on levels of paranoia. However, hometown identification has no protective value, and may even be harmful in this context. Therefore, whilst social

identity is an important determinant of paranoia, not all identities are equal. Indeed, identities associated with one's current neighbourhood or town loom large in terms of fortifying people against high levels of paranoia in times of financial struggle.

One finding that is of particular significance is the finding that a combination of high hometown and low host town identification appears to maximise the effect of financial stress on paranoia via self-esteem. This emphasises the importance of location-based identities and their impact on mental health, particularly in students who are at an increased risk of developing mental health symptoms (Storrie et al., 2010). It may be suggested that high hometown identification and low host town identification is associated with students 'missing home' and the stronger these thoughts and feelings are, the more negative their impact will be on student mental health.

The findings support previous research that has suggested that social identification increases self-esteem and improves mental health (Haslam et al., 2009; C. Haslam, Cruwys, S. Haslam, Dingle, & Chang, 2016). The findings are also consistent with the SIMIC (Jetten & Pachana, 2012) insofar as social groups help individuals to develop a sense of purpose and self-worth during life transitions, such as moving to a new town/city to attend university. It is well known that psychological symptoms are more apparent in individuals with low self-esteem and, in line with past research, it was found that low self-esteem was associated with paranoia (Fowler et al., 2011; Thewissen et al., 2008; Wickham et al., 2015) in both general population and student samples.

It has been argued that groups provide their members with purpose and meaning (Dingle et al., 2013; S. Haslam, Jetten, Postmes, & C. Haslam, 2009). However, as this study highlights, although hometown neighbourhood identities are valued and may, on the surface, seem important and meaningful, their importance and relevance once a person has moved away from home is questionable. This is because the strength of hometown identity appears to irrelevant, so long as host town identification is high. This finding appears to conflict with a model of immigrant mental health that categorises the process of *acculturation* (adopting a new culture) into four strategies based on identification with culture of origin and host culture, two of which are particularly relevant to this current research (Berry & Kim, 1988). Specifically, i*ntegration* occurs when immigrants embrace their new culture whilst also maintaining their birth culture*; assimilation*, on the other hand, refers to the

process of embracing a new culture whilst disidentifying with one's original culture. This model suggests that lower levels of paranoia will be evident among people who integrated rather than assimilated (i.e. maintained strong identities with both their host town and their hometown) whereas, in this study, it appears that both of these acculturation strategies had positive outcomes in the student sample.

However, it is important to note that this study did not specifically assess immigrants or ethnic/cultural identities. It is also possible that the relative effects of the two types of acculturation strategies mentioned will depend on the type of stressor experienced. For example, financial concerns may particularly impact on people's capacity to participate as a full member of a community (Sen, 1997). Further research is required to determine under which circumstances the acculturation strategies have the best outcomes amongst immigrant populations.

A limitation of the present work is that due to using two pre-existing datasets designed to address varying research questions, the identities measured across the studies were not identical. Specifically, neighbourhoods, as measured in Study 1, are geographically smaller than towns, which were assessed in Study 2. Another limitation is the reliance on single-item measures, for example, to measure self-esteem and identity in Study 1. However, it should also be noted that the self-esteem item has been validated against longer scales and that there was high convergence between the studies. The current cross-sectional studies also only provide a snapshot of the relationships between financial stress, self-esteem, social identities and paranoia. A longitudinal design would provide a better understanding of the importance of identities in disrupting the pathway from financial stress to low self-esteem and paranoid ideation. Moreover, whilst it would be unethical to experimentally manipulate most mental health symptoms, it would be informative to manipulate mild financial stress and examine whether more salient social identities influence the effects of financial stress on social trust and affect, as proxies for mental health symptoms.

It would also be beneficial to carry out further studies assessing whether other types of stressors affect paranoia but are attenuated by strong social identification and also whether different psychological mediating mechanisms proposed elsewhere (e.g. locus of control; McIntyre, Elahi & Bentall, 2016) are implicated. As noted in past work, stressful life events such as discrimination and rejection due to sexuality, race or religion are associated with poor mental health outcomes (Williams et al., 1997; Meyer, 2003). The finding that host town identities are critical to alleviating paranoid

symptoms during times of stress may lead to novel interventions that aim to improve mental health by promoting psychological resilience. This may be achieved by fostering strong ties between vulnerable individuals and their local neighbourhoods.

In sum, the studies found that financial stress takes a severe toll on people's psychological health and self-esteem. Further, the results support the notion that identifying with one's current local area is protective against high levels of paranoia and demonstrated that the effect did not extend to previous hometown identities. The results highlight the importance of community cohesion in improving paranoid symptoms and provide further understanding about how different combinations of identity impact individual's levels of paranoia.

5.9 References

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin*, *117*(3), 497.

Berry, J. W., & Kim, U. (1988). Acculturation and mental health. In P. Dasen, J. W. Berry & N. Sartorius (Eds.), *Health And Cross-Cultural Psychology: Towards Application* (Vol. 12, pp. 207-236). London: Sage.

Block, J., & Robins, R. W. (1993). A longitudinal study of consistency and change in self-esteem from early adolescence to early adulthood. *Child development*, *64*(3), 909-923.

Brandmeir, K., Grimm M., Heise M., & Holzhausen A (2015). Global Wealth Report 2015. Allianz Public Policy & Economic Research, Munich.

Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimination among African Americans: Implications for group identification and well-being. *Journal of personality and social psychology*, *77*(1), 135.

Ciarrochi, J., Deane, F. P., & Anderson, S. (2002). Emotional intelligence moderates the relationship between stress and mental health. *Personality and individual differences*, *32*(2), 197-209.

Community Life Survey 2014 to 2015: Data - GOV.UK. (2015). Retrieved 13 October 2017, from https://www.gov.uk/government/publications/community-life-survey-2014-to-2015-data.

Cooke, R., Barkham, M., Audin, K., Bradley, M., & Davy, J. (2004). Student debt and its relation to student mental health. *Journal of Further and Higher Education*, *28*(1), 53-66.

Crocker, J., & Luhtanen, R. K. (2003). Level of self-esteem and contingencies of self-worth: Unique effects on academic, social, and financial problems in college students. *Personality and Social Psychology Bulletin*, *29*(6), 701-712.

Cruwys, T., Dingle, G. A., Haslam, C., Haslam, S. A., Jetten, J., & Morton, T. A. (2013). Social group memberships protect against future depression, alleviate depression symptoms and prevent depression relapse. *Social Science & Medicine*, *98*, 179-186.

Cruwys, T., Haslam, S. A., Dingle, G. A., Haslam, C., & Jetten, J. (2014). Depression and social identity: An integrative review. *Personality and Social Psychology Review*, *18*(3), 215-238.

Diener, E., & Diener, M. (1995). Cross-cultural correlates of life satisfaction and self-esteem. *Journal of Personality and Social Psychology*, *68*(4), 653-663.

Dingle, G. A., Brander, C., Ballantyne, J., & Baker, F. A. (2013). 'To be heard': The social and mental health benefits of choir singing for disadvantaged adults. *Psychology of Music*, *41*(4), 405-421.

Doosje, B., Ellemers, N., & Spears, R. (1995). Perceived intragroup variability as a function of group status and identification. *Journal of experimental social psychology*, *31*(5), 410-436.

Dwyer, R. E., McCloud, L., & Hodson, R. (2011). Youth debt, mastery, and self-esteem: Class-stratified effects of indebtedness on self-concept. *Social Science Research*, *40*(3), 727-741.

Ellemers, N., Kortekaas, P., & Ouwerkerk, J. W. (1999). Self-categorization, commitment to the group and group self-esteem as related but distinct aspects of social identity. *European journal of social psychology 29*(2-3), 371-389.

Fowler, D., Freeman, D., Smith, B. E. N., Kuipers, E., Bebbington, P., Bashforth, H., ... & Garety, P. (2006). The Brief Core Schema Scales (BCSS): psychometric properties and associations with paranoia and grandiosity in non-clinical and psychosis samples. *Psychological medicine*, *36*(6), 749-759.

Fowler, D., Hodgekins, J., Garety, P., Freeman, D., Kuipers, E., Dunn, G., ... & Bebbington, P. E. (2011). Negative cognition, depressed mood, and paranoia: a longitudinal pathway analysis using structural equation modeling. *Schizophrenia bulletin*, *38*(5), 1063-1073.

Harter, S. (1990). Self and identity development. Cambridge, MA: Harvard University.

Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G., & Chang, M. X. L. (2016). Groups 4 health: evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of affective disorders*, *194*, 188-195.

Haslam, C., Cruwys, T., Milne, M., Kan, C. H., & Haslam, S. A. (2016). Group ties protect cognitive health by promoting social identification and social support. *Journal of aging and health*, *28*(2), 244-266.

Haslam, S. A., Jetten, J., & Waghorn, C. (2009). Social identification, stress and citizenship in teams: a five-phase longitudinal study. *Stress and Health*, *25*(1), 21-30.

Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: an emerging agenda for applied psychology. *Applied Psychology*, *58*(1), 1-23.

Haslam, S. A., O'brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British Journal of Social Psychology*, *44*(3), 355-370.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling.

Hovey, J. D., & King, C. A. (1996). Acculturative stress, depression, and suicidal ideation among immigrant and second-generation Latino adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, *35*(9), 1183-1192.

Iyer, A., Jetten, J., Tsivrikos, D., Postmes, T., & Haslam, S. A. (2009). The more (and the more compatible) the merrier: Multiple group memberships and identity compatibility as predictors of adjustment after life transitions. *British Journal of Social Psychology*, *48*(4), 707-733.

Jetten, J., Branscombe, N. R., Haslam, S. A., Haslam, C., Cruwys, T., Jones, J. M., ... & Thai, A. (2015). Having a lot of a good thing: Multiple important group memberships as a source of self-esteem. *PloS one*, *10*(5), e0124609.

Jetten, J., & Pachana, N. (2012). Not wanting to grow old: A Social Identity Model of Identity Change (SIMIC) analysis of driving cessation among older adults.

Krause, N., Jay, G., & Liang, J. (1991). Financial strain and psychological well-being among the American and Japanese elderly. *Psychology and Aging*, *6*(2), 170.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.

Linn, M. W., Sandifer, R., & Stein, S. (1985). Effects of unemployment on mental and physical health. *American Journal of Public Health*, *75*(5), 502-506.

Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and social psychology bulletin*, *18*(3), 302-318.

Lund, C., Breen, A., Flisher, A. J., Kakuma, R., Corrigall, J., Joska, J. A., ... & Patel, V. (2010). Poverty and common mental disorders in low and middle income countries: a systematic review. *Social science & medicine*, *71*(3), 517-528.

Mayhew, K. P., & Lempers, J. D. (1998). The relation among financial strain, parenting, parent self-esteem, and adolescent self-esteem. *The Journal of Early Adolescence*, *18*(2), 145-172.

McIntyre, J. C., Elahi, A., & Bentall, R. P. (2016). Social identity and psychosis: Explaining elevated rates of psychosis in migrant populations. *Social and Personality Psychology Compass*, *10*(11), 619-633.

McIntyre, J. C., Wickham, S., Barr, B., & Bentall, R. P. (2017). Social Identity and Psychosis: Associations and Psychological Mechanisms. *Schizophrenia Bulletin*. *44*(3), 681-690.

Melo, S., Corcoran, R., Shryane, N., & Bentall, R. P. (2009). The persecution and deservedness scale. *Psychology and Psychotherapy: Theory, Research and Practice*, *82*(3), 247-260.

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychological bulletin*, *129*(5), 674.

Office for National Statistics. Social Survey Division. (2016). *Wealth and Assets Survey, Waves 1-4, 2006-2014: Secure Access*. [data collection]. *3rd Edition.* UK Data Service. SN: 6709, http://doi.org/10.5255/UKDA-SN-6709-3.

Pinto, M. B., Mansfield, P. M., & Parente, D. H. (2004). Relationship of credit attitude and debt to self-esteem and locus of control in college-age consumers. *Psychological Reports*, *94*(3_suppl), 1405-1418.

Praharso, N. F., Tear, M. J., & Cruwys, T. (2017). Stressful life transitions and wellbeing: A comparison of the stress buffering hypothesis and the social identity model of identity change. *Psychiatry research*, *247*, 265-275.

Richardson, T., Elliott, P., & Roberts, R. (2013). The relationship between personal unsecured debt and mental and physical health: a systematic review and meta-analysis. *Clinical psychology review*, *33*(8), 1148-1162.

Roberts, J. E., Gotlib, I. H., & Kassel, J. D. (1996). Adult attachment security and symptoms of depression: The mediating roles of dysfunctional attitudes and low self-esteem. *Journal of personality and social psychology*, *70*(2), 310.

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and social psychology bulletin*, *27*(2), 151-161.

Rosenberg, M., Schooler, C., Schoenbach, C., & Rosenberg, F. (1995). Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American sociological review*, 141-156.

Sani, F., Wakefield, J. R., Herrera, M., & Zeybek, A. (2017). On the Association between Greater Family Identification and Lower Paranoid Ideation among Non-Clinical Individuals: Evidence from Cypriot and Spanish Students. *Journal of Social and Clinical Psychology*, *36*(5), 396-418.

Sellers, R. M., Smith, M. A., Shelton, J. N., Rowley, S. A., & Chavous, T. M. (1998). Multidimensional model of racial identity: A reconceptualization of African American racial identity. *Personality and social psychology review*, *2*(1), 18-39.

Sen, A. (1997). *Choice, welfare and measurement*. Harvard University Press.

Storrie, K., Ahern, K., & Tuckett, A. (2010). A systematic review: students with mental health problems—a growing problem. *International journal of nursing practice*, *16*(1), 1-6.

Tajfel, H. (1972). Experiments in a vacuum. Academic Press: London.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The social psychology of intergroup relations*, *33*(47), 74.

Thewissen, V., Bentall, R. P., Lecomte, T., van Os, J., & Myin-Germeys, I. (2008). Fluctuations in self-esteem and paranoia in the context of daily life. *Journal of abnormal psychology*, *117*(1), 143.

Thewissen, V., Bentall, R. P., Oorschot, M., à Campo, J., van Lierop, T., van Os, J., & Myin-Germeys, I. (2011). Emotions, self-esteem, and paranoid episodes:

An experience sampling study. *British Journal of Clinical Psychology*, *50*(2), 178-195.

Thomas, J., Bentall, R. P., Hadden, L., & O'Hara, L. (2017). Ethnic identity and paranoid thinking: Implicit out-group preference and language dominance predict paranoia in Emirati women. *Journal of behavior therapy and experimental psychiatry*, *56*, 122-128.

Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R., & Caspi, A. (2006). Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood. *Developmental psychology*, *42*(2), 381.

Wearden, A., Peters, I., Berry, K., Barrowclough, C., & Liversidge, T. (2008). Adult attachment, parenting experiences, and core beliefs about self and others. *Personality and Individual Differences*, *44*(5), 1246-1257.

Wilburn, V. R., & Smith, D. E. (2005). Stress, self-esteem, and suicidal ideation in late adolescents. *Adolescence*, *40*(157), 33.

Wickham, S., Sitko, K., & Bentall, R. P. (2015). Insecure attachment is associated with paranoia but not hallucinations in psychotic patients: the mediating role of negative self-esteem. *Psychological medicine*, *45*(7), 1495-1507.

Williams, D. R., Yu, Y., Jackson, J. S., & Anderson, N. B. (1997). Racial differences in physical and mental health: Socio-economic status, stress and discrimination. *Journal of health psychology*, *2*(3), 335-351.

Chapter 6: The Social Identity Theory and Ethnic Minority Populations

6.1 Applying the Social Identity Theory to Ethnic Minority Populations

Previous chapters in my thesis have found that the distribution of paranoia is on a continuum with healthy functioning and that high neighbourhood identification is associated with a decrease in levels of paranoia that are associated with financial stress. This relationship was found to be mediated by self-esteem. It has also been noted, in Chapter 1, that belonging to an ethnic minority group is a risk factor for the development of psychotic symptoms (King, Coker, Leavey, Hoare & Johnson-Sabine, 1994). People of African-Caribbean heritage, in particular, are at the highest risk amongst ethnic minority groups as found in a study conducted in London (van Os, Castle, Takei, Der & Murray, 1996). The discrepancy of psychotic illnesses in this ethnic group is so high in comparison with other ethnic groups that Glover (1989) suggested that African-Caribbean individuals in Britain were experiencing an epidemic of schizophrenia. Additionally, significant differences between Black (24%) and White (10%) individuals were also reported specifically to paranoia when 1990 census data was examined in New York (Cohen, Magai, Yaffee & Walcott-Brown, 2004).

One possible reason for this effect is that people from ethnic minority groups lose important identities during and after the process of migration (McIntyre, Elahi & Bentall, 2016). However, it has been suggested that second generation immigrants are at a particularly increased risk because post-migration factors, such as ethnic status and host country, are particularly important in the mental health of minority populations (Bourque, van der Ven & Malla, 2011). Therefore, it appears that identity crises could impact African-Caribbean people regardless of their status as an immigrant. For example, second-generation immigrants may not completely identify with their ancestral culture but may also experience prejudice and discrimination in their host country. This may lead to them exhibiting low self-esteem and feelings of uncertainty, which are predictors of psychotic symptoms (Kramer & Wei, 1999; Thewissen, Bentall, Lecomte, van Os & Myin-Germeys, 2008).

Previous studies have assessed the protective role of social identification in general population and student samples (as illustrated in Chapter 5). The general finding amongst such studies is that by strongly identifying with various groups, individuals are protected from poor mental health outcomes (McIntyre et al., 2016).

However, to my knowledge, no research has been conducted to examine the protective role of social identification in the relationship between negative stressors and paranoia in ethnic minority populations in Britain. Similarly, the role of self-esteem as a psychological mechanism that might explain the relationship between negative stressors and paranoia has not been investigated in ethnic minority populations in Britain.

The next chapter aims to address both of the aforementioned gaps in research evidence, by exploring the relationship between negative contact with the majority White population and paranoia amongst African-Caribbean individuals. The role of self-esteem will be examined as a possible psychological mediator and British identity will be assessed as a moderator as strong social identities have been theorised to have protective value. This research will help to clarify whether self-esteem plays a similar role in ethnic minority groups as it does in White majority groups, as found in Chapter 5. A novel contribution to the research will be to also examine the role of locus of control (LoC) as a psychological mechanism. It has been found that LoC is associated with social identification and depression (Greenaway Haslam, Branscombe, Cruwys, Ysseldyk & Heldreth, 2015). However, the role of LoC as a psychological mediator in the relationship between negative stressors and paranoia, when social identification is entered as a moderator, has not been tested. Therefore, Chapter 7 also aims to examine this in an ethnic minority sample.

The research reported in Chapter 7 also explores the potential impact that contextual factors play in the experience of paranoia (i.e. negative contact with White British people). Meleady and Forder (2018) noted that negative intergroup contact increases prejudice and discrimination. This prejudice and discrimination is more likely to occur when individuals from ethnic minority backgrounds live in relative isolation from other people who share their ethnic background (Bécares, Nazroo & Stafford, 2009). Such victimisation may lessen the extent to which an individual identifies with their community. Janssen et al. (2003) found that discrimination towards minority group members by members of the majority group, which is a type of negative contact, was a strong predictor of paranoia. Being discriminated against could also contribute to ethnic minority groups feeling victimised and powerless, which are also risk factors for paranoia (Mirowsky & Ross, 1983). Given that the pathway from victimisation to paranoia includes low self-esteem (Bentall et al., 2008;

Thewissen et al., 2008) and given that social identification protects against low self-esteem (McIntyre et al., 2017), it would be reasonable to hypothesise that strong ethnic identification could potentially protect minority group members from the development of paranoia when they feel victimised against. Therefore, the following chapter will investigate the role of British identification on the relationship between African-Caribbean participants' experiences of negative contact with the majority White British outgroup and their levels of paranoia. Further, it will explore whether the proposed effect of negative contact on paranoia can be explained by changes in self-esteem and LoC.

6.2 References

Bécares, L., Nazroo, J., & Stafford, M. (2009). The buffering effects of ethnic density on experienced racism and health. *Health & place*, *15*(3), 700-708.

Bentall, R. P., Rouse, G., Kinderman, P., Blackwood, N., Howard, R., Moore, R., ... & Corcoran, R. (2008). Delusions of paranoia in schizophrenia spectrum disorders and depression: the transdiagnostic role of expectations of negative events and negative self-esteem. *The Journal of nervous and mental disease*, *196*(5), 375-383.

Bourque, F., van der Ven, E., & Malla, A. (2011). A meta-analysis of the risk for psychotic disorders among first-and second-generation immigrants. *Psychological medicine*, *41*(5), 897-910.

Cohen, C. I., Magai, C., Yaffee, R., & Walcott-Brown, L. (2004). Racial differences in paranoid ideation and psychoses in an older urban population. *American Journal of Psychiatry*, *161*(5), 864-871.

Glover, G. R. (1989). Why is there a high rate of schizophrenia in British Caribbeans? *British journal of hospital medicine*, *42*(1), 48-51.

Greenaway, K. H., Haslam, S. A., Cruwys, T., Branscombe, N. R., Ysseldyk, R., & Heldreth, C. (2015). From "we" to "me": Group identification enhances perceived personal control with consequences for health and well-being. *Journal of Personality and Social Psychology*, *109*(1), 53.

Janssen, I., Hanssen, M., Bak, M. L. F. J., Bijl, R. V., De Graaf, R., Vollebergh, W., ... & Van Os, J. (2003). Discrimination and delusional ideation. *The British Journal of Psychiatry*, *182*(1), 71-76.

King, M., Coker, E., Leavey, G., Hoare, A., & Johnson-Sabine, E. (1994). Incidence of psychotic illness in London: comparison of ethnic groups. *Bmj*, *309*(6962), 1115-1119.

Kramer, R. M., & Wei, J. (1999). Social uncertainty and the problem of trust in social groups: The social self in doubt. *The psychology of the social self*, 145-168.

McIntyre, J. C., Elahi, A., & Bentall, R. P. (2016). Social identity and psychosis: Explaining elevated rates of psychosis in migrant populations. *Social and Personality Psychology Compass*, *10*(11), 619-633.

McIntyre, J. C., Wickham, S., Barr, B., & Bentall, R. P. (2017). Social identity and psychosis: Associations and psychological mechanisms. *Schizophrenia Bulletin*, *44*(3), 681-690.

Meleady, R., & Forder, L. (2018). When contact goes wrong: Negative intergroup contact promotes generalized outgroup avoidance. *Group Processes & Intergroup Relations*, 1368430218761568.

Mirowsky, J., & Ross, C. E. (1983). Paranoia and the structure of powerlessness. *American Sociological Review*, 228-239.

Thewissen, V., Bentall, R. P., Lecomte, T., van Os, J., & Myin-Germeys, I. (2008). Fluctuations in self-esteem and paranoia in the context of daily life. *Journal of abnormal psychology*, *117*(1), 143.

Van Os, J., Castle, D. J., Takei, N., Der, G., & Murray, R. M. (1996). Psychotic illness in ethnic minorities: clarification from the 1991 census. *Psychological medicine*, *26*(1), 203-208.

Chapter 7: African-Caribbean Peoples' Negative Contact with White Majority Populations: How Locus of Control Protects against Paranoia

7.1 Abstract

People from ethnic minority groups have long been found to suffer from elevated rates of psychosis, with African-Caribbean people at the highest risk. Here, I suggest that this may, in part, be due to social identity processes. Specifically, I examined whether experiencing negative contact with the majority White population in Britain (negative contact) was associated with paranoia amongst African-Caribbean individuals, and whether this relationship depended on participants identification with Britain. Further, I tested whether the relationship between negative contact and paranoia was mediated by self-esteem and/or locus of control. A sample of people who identified as African-Caribbean (N=335) was recruited using an online survey. I administered an explicit measure of identity and measures of negative contact, self-esteem, powerful others LoC and paranoia. The results indicated that self-esteem did not mediate the relationship between negative contact and paranoia regardless of how high British identification was. However, powerful others LoC was found to mediate the positive relationship between negative contact (high levels of negative contact with White people) and paranoia (high levels of paranoia) when participants felt more British (high levels of British identification). The findings suggest that in order for minority groups who strongly identify with Britain to present low symptoms of paranoia, a reduction of negative contact between minority and majority groups is essential as this would help people feel like they are more in control of the events that occur in their own lives.

7.2 Introduction

As detailed in Chapter 6, negative social stressors are associated with paranoia. Strong social identities may buffer against these stressors by furnishing people with self-esteem and increasing their sense of personal control. In the present research, I test this possibility in an ethnic minority sample.

Epidemiological and patient studies have identified a number of risk factors which make certain groups susceptible to developing symptoms of paranoia. These include: parental neglect, social inequality, living in urban environments and childhood trauma (Sitko, Bentall, Shevlin & Sellwood, 2014; Bentall, Wickham, Shevlin, & Varese, 2012; Beards, Gayer-Anderson, Borges, Dewey, Fisher & Morgan, 2013; Bentall et al., 2014). Another risk-factor for psychotic symptoms, including paranoia, is belonging to an ethnic minority group (McIntyre, Elahi & Bentall, 2016). McIntyre et al. (2016) highlight a number of reasons for why this might be, including immigration (Yeh, 2003; Sam & Berry, 2010) and discrimination (Janssen et al., 2003). In Britain, individuals of African or Caribbean descent have been found to be at an elevated risk of psychosis, with psychosis rates among African-Caribbean and Black African groups 6.7 and 4.1 times higher than psychosis rates for White Britons (Fearon et al., 2006). These higher rates among ethnic minority groups are also evident specifically for symptoms of paranoia (Hitch & Rack, 1980; Westermeyer, 1989).

To my knowledge, there have been a number of recent studies that have assessed social identification and paranoia. As aforementioned in previous chapters, Thomas, Bentall, Hadden and O'Hara (2017) examined the ethnic identities of female Emirati students studying in an American University in Abu Dhabi, United Arab Emirates (UAE). It was found that identifying with the culture and place that students lived in was associated with lower paranoia. Additionally, Sani, Wakefield, Herrera and Zeybek (2017) found that family identification predicted reduced paranoia over time. More recently, Greenaway, Haslam and Bingley (2018) conducted a mini-meta analysis and reported a robust association between national identification and paranoia across studies. One implication of this study is that there is a need to explore the impact of British identification on different groups living in Britain. Also, McIntyre, Wickham, Barr and Bentall (2017) assessed the relationship between social identification and paranoia, and the role of self-esteem in this relationship. Their

research suggested that social identification reduced levels of paranoia by furnishing people with self-esteem. Even though, social stressors were not assessed in this study, this finding is consistent with the findings in Chapter 5. In Chapter 5, it was found that neighbourhood identification reduced symptoms of paranoia, which were associated with financial stress, by bolstering self-esteem when people identified with their current place of residence. Thus, self-esteem is important in explaining stressor-paranoia relationships as well as identity-paranoia relationships.

It is unknown whether the critical role of self-esteem extends to ethnic minority populations. Indeed, it is plausible that the processes involved in social identification may be different among ethnic minority groups and depend on contextual factors such as, ethnic density (see below). For example, Schofield et al. (2018) conducted a study on immigrant groups that lived in an area with few people from the same ethnic group as them and tested whether this was associated with elevated rates of psychosis (the ethnic density effect). The study found strong evidence for an ethnic density effect on rates of psychosis for second generation immigrants but not for first generation immigrants.

7.2.1 The Role of Contact

Despite strong evidence that ethnic minority groups experience elevated rates of psychosis, the role of ethnic density is also important to consider. Halpern and Nazroo (2000) suggest that immigrants who live in areas where the majority of inhabitants are White are at a higher risk of developing psychotic symptoms (Boydell et al., 2001). This suggestion was further supported by a study in the Netherlands which found that it was only immigrants living in low ethnic density neighbourhoods who experienced higher rates of psychosis (Veling, Selten, Susser, Laan, Mackenbach & Hoek, 2007). This may be because individuals from ethnic minority backgrounds are more likely to experience negative contact with people of the native majority ethnic group if they live in an area that is low in ethnic density.

Allport (1954) posited that contact between different groups can reduce intergroup prejudice and discrimination. However, for this to occur, the contact between the groups needs to be positive and meaningful. Allport's hypothesis has been supported by hundreds of studies. More recently, Barlow et al. (2012) added nuance to this theory, finding that negative contact with outgroups was a stronger predictor of

increased prejudice than positive contact was a predictor of reduced prejudice, demonstrating the importance of negative contact in intergroup relations. However, there is limited empirical research that has examined the role of contact in mental health.

Of the research which has been conducted in this domain, it has been found that intergroup friendships between Black and White students improved the wellbeing of Black students who were particularly sensitive to race-based rejection (Mendoza-Denton & Page-Gould, 2008). This supports the notion that positive intergroup contact has the potential to improve mental health. Additionally, Page-Gould, Mendoza-Denton, and Tropp (2008) found that intergroup friendships between Latinos/as and Whites led to a decrease in cortisol reactivity, which is a hormonal correlate of stress (Lovallo & Thomas, 2017). Despite such findings, it is important to note that these studies assessed positive contact so more research needs to be conducted that specifically examines the relationship between negative contact and mental illnesses. Here, I sought to extend on findings in the contact literature to determine if the relationship between social stress, in the form of negative contact, and paranoia, was influenced by levels of British identity.

7.2.2 Mediators of the Relationship between Negative Contact and Paranoia

Psychological models have been proposed to explain the emergence of paranoid symptoms (Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001; Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002). Both these models suggest that negative beliefs about the self, play an important role in the formation of paranoia. Support for this role of unstable (Thewissen, Bentall, Lecomte, van Os & Myin-Germeys, 2008) and low self-esteem in developing symptoms of paranoia has been found in several studies (Bentall, Kinderman & Kaney, 1994; Freeman et al., 1998). Bentall et al. (1994) proposed that an externalising attributional style minimises accessibility of negative self-schemas which lead to low self-esteem at the expense of generating paranoid beliefs. Additionally, McIntyre et al. (2017) found that levels of self-esteem explained the association between social identities and paranoia in general population and student samples. No work, however, has examined the buffering role of social identities in the association between social stressors and paranoia in an ethnic minority sample.

Locus of Control (LoC) refers to the extent to which people feel in control of the events that occur in their own lives. As highlighted by Levenson's (1972) multidimensional scale, there are three subtypes of LoC; internal, powerful others and chance. Someone with an internal LoC would hold the belief that they are in control of the events that occur in their own life. Someone with a powerful others LoC would believe that events in their life are due to other people, usually people in a position of authority, and someone with a chance LoC would think that the events that occur in their life are just coincidental and due to chance.

It has been suggested that people with stronger social identities are less likely to attribute negative events to internal causes (themselves) and this should lead to lower levels of depression (Cruwys, South, Greenaway & Haslam, 2015; Sharif, 2017). Patients with paranoia have been found to typically report an external LoC (Rosenbaum & Hadari, 1985) and exhibit a low personal sense of control (Greenaway, Haslam, Cruwys, Branscombe, Ysseldyk & Heldreth, 2015). Greenaway et al. (2015) found that the relationship between social identity, health and wellbeing was mediated by personal sense of control. Despite not being identical to LoC, personal sense of control and LoC are conceptually linked. However, neither of them has been tested in an ethnic minority sample.

Rosenbaum and Hadari (1985) used Levenson's (1972) scale and demonstrated that patients with paranoia believed that the course of their life was influenced by powerful others, replicated by later studies (Kaney & Bentall, 1989; Lasar, 1997). Also, Mirowsky and Ross (1983) reported data on paranoid beliefs from a community survey of residents of El Paso-Juarez in Mexico. They found that LoC mediated the relationship between victimisation and powerlessness and paranoia. In addition to this, an epidemiological study of over 7000 Dutch citizens found that experiences of discrimination predicted the later development of paranoia (Janssen et al., 2003). The high risk of psychosis in immigrant groups (Harrison, Owens, Holton, Neilson & Boot, 1988), especially those living in relative isolation from other immigrants (Boydell et al., 2001), might be explained by these effects of powerlessness which may manifest as reduced feelings of personal control.

As well as LoC, Kaney and Bentall (1989) also measured the related construct of attributional style using the Attributional Style Questionnaire (ASQ, Peterson,

Semmel, Von Baeyer, Abramson, Metalsky & Seligman, 1982), finding that patients with paranoia showed an excessive bias towards attributing positive events to themselves and negative events to external causes (in other words, the patients felt that their hardships were due to external factors, e.g. other people or bad luck). However, Kinderman and Bentall (1996) criticised the internality-externality dimension of Peterson et al.'s ASQ (1982) and instead suggested that the external dimension should be divided into *external personal* and *external situational* causes. External personal attributions refer to the notion that another person or group of people was responsible for an event, while external situational attributions refer to the idea that the event was due to the situation or due to chance. Kinderman and Bentall (1997) subsequently found that patients with paranoia had a specific bias towards attributing negative events to external personal causes. Since that time, many studies of the attributional style of patients with paranoia have been conducted, sometimes with inconsistent results. However, a recent meta-analysis by Murphy, Bentall, Freeman, O'Rourke and Hutton (2018) found that an externalising attributional bias was positively associated with paranoia severity in patients with psychosis (21 studies) and that patients with paranoia also had a greater externalising attributional bias than non-clinical controls (27 studies), people with depression (10 studies), and psychotic patients who did not experience delusions of paranoia (11 studies).

Together, past research suggests that social identification is associated with reduced levels of paranoia among general population and student samples, and that groups need to be perceived positively to provide psychological benefits to their members. Moreover, there is evidence to suggest that the relationship between social stressors and paranoia is mediated by self-esteem and locus of control, but this has not been examined in ethnic minority populations.

7.2.3 The Present Research

I aimed to assess whether negative contact with White British people amongst African-Caribbean participants was associated with higher levels of paranoia. I hypothesised that when people identified with groups that provide them with support and positive social interactions, then identification should reduce paranoia when individuals experience low levels of negative contact. Therefore, participants who exhibited high levels of negative contact with White British people and experienced

high levels of British identification would exhibit high levels of paranoia. If, however individuals experienced low levels of negative contact with White British people and strongly identify with Britain, they would experience lower levels of paranoia. This hypothesis is consistent with social cure models of health, which suggest that, for groups to provide health benefits, group members need to find them positive and meaningful (Jetten, S. Haslam, Cruwys, Greenaway, C. Haslam & Steffens, 2017).

I also hypothesised that this relationship would be mediated by self-esteem and powerful others LoC such that high paranoia would be associated with low self-esteem and a stronger powerful others LoC. To test these hypotheses, I examined the relationship between negative contact with the White majority population and paranoia in African-Caribbean participants and assessed how British identification, self-esteem and powerful others LoC impacted this association.

7.3 Methods

7.3.1 Participants and Design

The online Qualtrics survey company was used to recruit British participants who identified as being African or Caribbean. A total of 350 participants were recruited. Participants were excluded if manual attention checks showed them not to be paying attention or putting in reduced effort. To determine whether this was the case, the open-ended questions were examined (e.g. ethnicity question below) and participants who failed to provide an identity for the open-ended items or those who entered random characters (e.g. ABCD) were excluded from the analysis. A total of 12 (3.4 %) participants were excluded on this basis. An additional three participants were excluded due to incomplete data on one of the key variables. This left a final sample of 335. The sample consisted of 102 males (30.5%) and 229 (68.3%) females. Gender was missing for 4 (1.2%) participants. All respondents received a small financial reimbursement in return for their participation.

7.3.2 Measures

7.3.2.1 Ethnicity

Participants' ethnicity was measured using two questions. One open-ended question asked, "How would you describe your ethnicity?" The second question was "Do you identify as having African or Caribbean heritage?" The question had two response options; *African* or *Caribbean*.

7.3.2.2 British Identity

British identity was measured using the Four-Item measure of Social Identification (FISI; Postmes, Haslam & Jans, 2013). For each of the four questions, participants indicated on a seven-point scale the extent to which they identified with Britain and British people e.g. "I am glad to be British." Response options ranged from 1 = *disagree completely* to 7 = *agree completely*.

7.3.2.3 Negative Contact

Negative contact was measured using a single-item (Barlow et al., 2012); "On average, how frequently do you have negative contact with White people?" Participants responded on a seven-point scale (1 = *never* to 7 = *extremely frequently*).

7.3.2.4 Self-esteem

Participants completed the single self-esteem item (Robins, Hendin, & Trzesniewski, 2001). Participants indicated on a seven-point scale how true or untrue the statement "I have high self-esteem" was for them, 1 = *not very true of me*, 7 = *very true of me*.

7.3.2.5 Powerful Others Locus of Control (LoC)

Participants completed the 24-item Levenson (1982) LoC scale. The scale measures three dimensions; internality, powerful others and chance, with each subscale consisting of eight items. For this study, the powerful others subscale was used because previous research has shown it to be the subscale most strongly linked to paranoia (Kaney & Bentall, 1989) and because of its conceptual link to paranoia. An example of a measure of the dimension powerful others is: "My life is chiefly controlled by powerful others." Response options ranged from -3 = *strongly disagree* to +3 = *strongly agree*. The powerful others subscale showed good internal consistency ($\alpha = .82$).

7.3.2.6 Paranoia

Paranoia was assessed with five items taken from the persecution subscale of the persecution and deservedness scale (PaDS; Melo, Corcoran, Shryane, & Bentall, 2009); the same five items were used in Chapter 5 and by McIntyre et al. (2017) who found that the five-item measure and full 10-item measure were highly correlated (0.94). Participants rated their agreement on a five-point scale with statements such as "I'm often suspicious of other people's intentions towards me" and "You should only trust yourself". Response options ranged from 1 = *strongly disagree* to 5 = *strongly agree*. The level of internal consistency for the scale was satisfactory ($\alpha = .84$).

7.3.2.7 Demographic Variables

Participants were asked to indicate their age and gender (coded as 1 = *male*, 2 = *female*).

7.3.3 Procedure

Ethical approval for the study was obtained from the University of Liverpool Ethics Committee (reference number: 2047, see Appendix D). First, participants were asked to consent after reading a Participant Information Sheet (see Appendix E). All questions were uploaded as a single questionnaire which participants were asked to complete. On completion, participants were debriefed and thanked for their time.

7.3.4 Statistical Analyses

Independent groups t-tests were conducted to determine differences between African and Caribbean participants. Descriptive statistics and bivariate correlations were calculated between the following variables: British identification, negative contact, self-esteem, powerful others LoC and paranoia. I also conducted a parallel moderated mediation analysis using model 7 of the PROCESS extension (Hayes, 2012) in SPSS to test whether the indirect effect of negative contact with White people on paranoia through self-esteem/powerful others LoC was moderated by British identity. Indirect effects were calculated via bootstrapping with 10000 resamples. This model allows for the assessment of conditional indirect effects for multiple mediators entered simultaneously (in this case, self-esteem and powerful others LoC). Age and gender were included as covariates. The model being tested is shown in Figure 7.1.

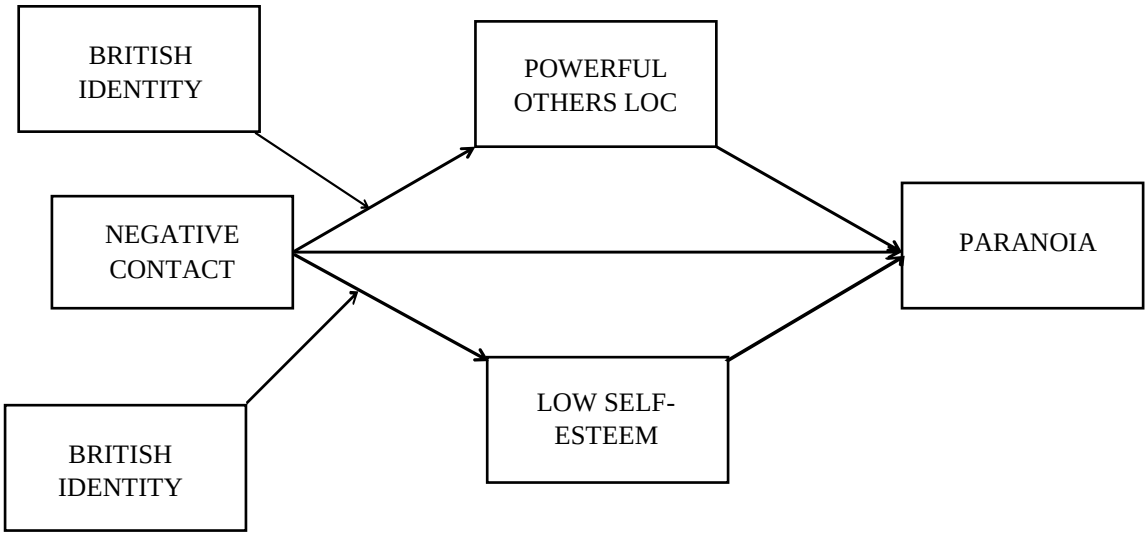


Figure 7.1. *Conceptual model of the moderated mediation effects of British identity on the relationship between negative contact with White British people and paranoia through self-esteem and powerful others LoC.*

7.4 Results

7.4.1 Data Preparation and Preliminary Analyses

There were 137 (41%) participants who identified as being of African descent and 198 (59%) participants who identified as being of Caribbean descent. The independent-groups t-tests revealed no significant differences between African and Caribbean participants on the following key variables: British identity (t= -.19, p= .85), negative contact (t= 1.88, p= .06), self-esteem (t= 1.92, p= .06), powerful others locus of control (t= -.85, p= .40) and paranoia (t= .27, p= .78). (Alpha was set at .05 with no correction for multiple comparisons to provide a liberal test of potential group differences). Therefore, I examined the full sample in all subsequent analyses.

Means, standard deviations and zero-order correlations for the final sample are reported in Table 7.1. Paranoia was associated with a stronger belief that powerful others were in control of life events, lower levels of British identification, higher levels of negative contact with White British people and reduced self-esteem. A stronger belief that powerful others were in control of life events was also associated with higher levels of negative contact with White British people and reduced self-esteem.

British identification was associated with increased self-esteem. All other associations were not significant.

Table 7.1. *Descriptive statistics and bivariate correlations between the variables.*

Variable	***M***	***SD***	1	2	3	4	5
1. Paranoia	2.85	.85	-	.50**	-.13*	.46**	-.14*
2. Powerful Others LoC	3.14	1.25	-	-	-.02	.29**	-.13*
3. British Identification	5.10	1.57	-	-	-	-.03	.25**
4. Negative Contact	3.31	1.42	-	-	-	-	.03
5. Self esteem	4.53	1.81	-	-	-	-	-

* $p < .05$, ** $p < .01$

7.4.2 Regression

A multiple linear regression was conducted with paranoia entered as the criterion variable and powerful others LoC, self-esteem, negative contact and British identity entered as predictors. A significant model was found F (4,333) = 50.52, $p <$ 0.001, which explained 38% of the variance in the criterion. Negative contact (B = .21, $p < .001$), powerful others LoC (B = .26, $p < .001$) and British identification (B = -.05, $p < .05$) were found to significantly predict paranoia. The coefficients suggest that higher levels of negative contact, an external powerful others LoC (believing that powerful others are in control of the events in your life) and less British identification were associated with paranoia. However, self-esteem (B = -.03, p = .12) did not significantly predict paranoia.

7.4.3 Moderated Mediation Analyses

Table 7.2 shows the unstandardised effects in the regression model predicting paranoia. Negative contact was entered as the independent variable, British identification as the moderator, and self-esteem and powerful others LoC as

simultaneous mediators. Table 7.2 shows the effects of negative contact with White people, British identity, self-esteem, powerful others LoC, paranoia, gender and age when all other variables in the model are held constant. Table 7.2 also illustrates the interactive effects of negative contact with White people and British identity on paranoia when self-esteem and powerful others LoC are tested as mediators.

The first part of Table 7.2 assesses the relationships between the variables when self-esteem is examined as a mediator. The analysis revealed that self-esteem was associated with gender; inspection of confidence intervals revealed that there is a significant negative association between gender and self-esteem, such that males have higher levels of self-esteem than females, but no other effects, including the interaction effects, were significant. As evident in Table 7.3, the conditional effects crossed zero for both low and high levels of British identity, hence there was no significant indirect pathway in the model via self-esteem.

In the middle section of Table 7.2, similar relationships are displayed when powerful others LoC (a belief that one's life is controlled by powerful others) is examined as a mediator of the relationship between negative contact and paranoia. British identity was found to be negatively associated with powerful others LoC, suggesting that higher levels of British identity are associated with a belief that powerful others do not control the events in an individual's life. The interaction between British identity and negative contact with White people was found to be positively associated with powerful others LoC. As illustrated at the in Table 7.2, confidence intervals for the index of moderated mediation (IMM) did not cross zero. Inspection of the conditional effects in Table 7.4 revealed that higher levels of negative contact predicted higher levels of paranoia through a belief that powerful others control the events in an individual's life, but only when British identification was high.

Finally, the bottom part of Table 7.2 revealed three significant associations; powerful others LoC and paranoia were positively associated, paranoia and age were negatively associated and negative contact with White people was positively associated with paranoia. This indicates that a belief that others control the events in an individual's life was associated with increased paranoia, younger participants reported higher levels of paranoia and increased negative contact with White people was also associated with higher levels of paranoia.

Table 7.2. *Unstandardised regression coefficients for the moderated mediation model.*

			B	***(S.E.)***	***(95% CI)***
Self-esteem	On	British Identity	.29	.15	-.01, .59
		Negative White contact	.11	.24	-.36, .59
		British Identity X Negative White contact	-.01	.04	-.10, .07
		Gender	-.66***	.19	-1.03, -.28
		Age	.01	.01	.01, .03
Powerful Others LoC	On	British Identity	-.28**	.11	-.49, -.08
		Negative White contact	-.20	.17	-.53, .12
		British Identity X Negative White contact	.08**	.03	.03, .14
		Gender	-.18	.13	-.44, .07
		Age	-.00	.01	.01, .01
Paranoia	On	Negative White contact	.21***	.03	.15, .26
		Self-esteem	-.03	.02	-.07, .01
		Powerful Others LoC	.26***	.03	.20, .32
		Gender	.01	.07	-.14, .15
		Age	-.01***	.01	-.02, -.00
Index of moderated mediation (IMM)			.02*	.01	.01, .04

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7.3. *Unstandardised indirect effect of negative contact on paranoia through self-esteem at low (-1 SD) and high (+1SD) levels of British identity.*

	B	***(S.E.)***	***(95% CI)***
Bootstrapped indirect effect at ***low*** **British identity** Negative contact → Self-esteem → Paranoia	<-.01	<.07	-.02, .01
Bootstrapped indirect effect at ***high*** **British identity** Negative contact → Self-esteem → Paranoia	<-.01	<.07	-.02, .02

Table 7.4. *Unstandardised indirect effect of negative contact on paranoia through powerful others LoC at low (-1 SD) and high (+1SD) levels of British identity.*

	B	***(S.E.)***	***(95% CI)***
Bootstrapped indirect effect at ***low*** **British identity** Negative contact → Powerful Others LoC → Paranoia	0.25	.02	-.01, .07
Bootstrapped indirect effect at ***high*** **British identity** Negative contact → Powerful Others LoC → Paranoia	.10*	.02	.06, .15

** 95% CIs do not include zero.*

7.5 Discussion

In this study I tested the hypothesis that, amongst people of African-Caribbean heritage, negative contact with White people would be associated with paranoia, but that the extent of this effect would depend on their British identification. I also examined whether this relationship between negative contact and paranoia was mediated by self-esteem and powerful others LoC. I analysed data from a large sample of British residents and found no mediating effect of negative contact on paranoia through self-esteem regardless of their levels of British identity. The results did, however, indicate that powerful others LoC was a mediator of the relationship between negative contact and higher levels of paranoia when participants exhibited high levels of British identity. Therefore, my hypotheses were partially supported.

British identification was found to be negatively associated with paranoia in both the regression and moderated mediation model; suggesting that irrespective of negative contact, high levels of British identity are associated with low levels of paranoia in British people of African-Caribbean heritage. Overall, the findings suggest that social identity is an important determinant of paranoia, but this relationship depends on the extent to which people experience negative contact with people who represent that identity.

My findings support previous research that suggests that the quality of intergroup contact is important in the development of psychotic symptoms (McIntyre et al., 2016). Additionally, my findings further imply that people from ethnic minority groups who live in majority White areas in Britain are at a higher risk of developing psychotic symptoms (Boydell et al., 2001; Veling et al., 2007) and this may be because they are more likely to experience negative contact with the majority White British population. However, one limitation of the present study is that ethnic density was not measured or controlled for so this can only be implied from the current findings.

Low levels of self-esteem have been found to play a crucial role in the existence of paranoia (Bentall et al., 2001; Freeman et al., 2002, McIntyre et al., 2016). In Chapter 5, it was found that self-esteem acted as a mediator for the effect that financial stress had on levels of paranoia when neighbourhood identity was assessed as a potential moderator. However, in the present study, self-esteem was not found to mediate the relationship between negative contact and paranoia when powerful others LoC was also entered as a simultaneous mediator and British identity as a potential moderator of the relationship. Therefore, it appears that both self-esteem and powerful others LoC act as important mediators in the relationship between social stressors and paranoia but each of them comes to the fore in different circumstances and possibly when assessing different ethnic groups. Indeed, according to my current findings, low levels of negative contact, combined with strong British identification appears to provide a source of greater control among people from minority groups who lack power and are discriminated against, which may be even more important for their mental health than their levels of self-esteem.

A limitation of the present research is that the strength of participants' ethnic identity was not measured implicitly. Despite the explicit measure of identity in the

present study (the Four-Item measure of Social Identification; FISI, Postmes et al., 2013), it may be that participants' explicit identities might differ from their implicit ones. In the explicit measure of identity, participants may have answered incorrectly or answered according to what they believe they should say. However, an implicit measure of identity, such as the Implicit Association Test (IAT: Greenwald, McGhee & Schwartz, 1998) or the Affective Priming Task (APT) as used in a study by Thomas et al. (2017) would remove these demand characteristics and provide a second measure of ethnic identity. Additionally, as the sample was recruited online, participants' ethnic status was self-reported and not verified. Participants' British identity was assessed but their African or Caribbean identity was not. It may have been fruitful to investigate whether their heritage ethnic identity provided any protection from paranoia which is associated with negative contact with the majority population.

Further to this, despite powerful others LOC being measured, attributional styles could also have been tested using the ASQ (Peterson et al., 1982). This would help to test for convergent evidence of these effects using different, but related, measures. Additionally, as highlighted by Kumar (2003) British identity is different to English identity as British identity conceptualises more countries which all English people may not identify with. Therefore, when conducting research in England, results may be more accurate and relevant if individuals' English identity, rather than British identity, is assessed.

This study adopts a cross-sectional design and, therefore, only provides a snapshot of the relationships between negative contact, British identification, self-esteem, powerful others LOC and paranoia. A longitudinal design would provide a better understanding of the importance of British identity in disrupting the pathway from negative contact to paranoia. It would also be beneficial to carry out further studies assessing whether other ethnic minority groups show similar effects to people from the African-Caribbean population. The finding that the quality of contact with the majority population is related to paranoia may lead to novel community level interventions that aim to improve relationships between minority and majority members. This may be achieved by encouraging intergroup work and social activities, particularly in low ethnic density neighbourhoods.

In sum, this study found that in people of African-Caribbean heritage, high levels of negative contact with the majority White British outgroup are associated with increased levels of paranoia when individuals exhibit high levels of British identification. Strong British identification was also related to lower paranoia, overall. Powerful others LoC was found to be an important psychological mechanism, which highlights the importance of control in stressor-identity-mental health processes. The findings extend current work on social identity and paranoia to a new population and elucidate social contextual factors that influence this relationship.

7.6 References

Allport, G. W., Clark, K., & Pettigrew, T. (1954). The nature of prejudice.

Barlow, F. K., Paolini, S., Pedersen, A., Hornsey, M. J., Radke, H. R., Harwood, J., ... & Sibley, C. G. (2012). The contact caveat: Negative contact predicts increased prejudice more than positive contact predicts reduced prejudice. *Personality and Social Psychology Bulletin*, *38*(12), 1629-1643.

Beards, S., Gayer-Anderson, C., Borges, S., Dewey, M. E., Fisher, H. L., & Morgan, C. (2013). Life events and psychosis: a review and meta-analysis. *Schizophrenia bulletin*, *39*(4), 740-747.

Bentall, R. P., Corcoran, R., Howard, R., Blackwood, N., & Kinderman, P. (2001). Persecutory delusions: a review and theoretical integration. *Clinical psychology review*, *21*(8), 1143-1192.

Bentall, R. P., de Sousa, P., Varese, F., Wickham, S., Sitko, K., Haarmans, M., & Read, J. (2014). From adversity to psychosis: pathways and mechanisms from specific adversities to specific symptoms. *Social psychiatry and psychiatric epidemiology*, *49*(7), 1011-1022.

Bentall, R. P., Kinderman, P., & Kaney, S. (1994). The self, attributional processes and abnormal beliefs: towards a model of persecutory delusions. *Behaviour research and therapy*, *32*(3), 331-341.

Bentall, R. P., Wickham, S., Shevlin, M., & Varese, F. (2012). Do specific early-life adversities lead to specific symptoms of psychosis? A study from the 2007 the Adult Psychiatric Morbidity Survey. *Schizophrenia bulletin*, *38*(4), 734-740.

Boydell, J., Van Os, J., McKenzie, K., Allardyce, J., Goel, R., McCreadie, R. G., & Murray, R. M. (2001). Incidence of schizophrenia in ethnic minorities in London: ecological study into interactions with environment. *Bmj*, *323*(7325), 1336.

Cruwys, T., South, E. I., Greenaway, K. H., & Haslam, S. A. (2015). Social identity reduces depression by fostering positive attributions. *Social Psychological and Personality Science*, *6*(1), 65-74.

Fearon, P., Kirkbride, J. B., Morgan, C., Dazzan, P., Morgan, K., Lloyd, T., ... & Mallett, R. (2006). Incidence of schizophrenia and other psychoses in ethnic minority groups: results from the MRC AESOP Study. *Psychological medicine*, *36*(11), 1541-1550.

Freeman, D., Garety, P., Fowler, D., Kuipers, E., Dunn, G., Bebbington, P., & Hadley, C. (1998). The London-East Anglia randomized controlled trial of cognitive-behaviour therapy for psychosis IV: Self-esteem and persecutory delusions. *British Journal of Clinical Psychology*, *37*(4), 415-430.

Freeman, D., Garety, P. A., Kuipers, E., Fowler, D., & Bebbington, P. E. (2002). A cognitive model of persecutory delusions. British Journal of Clinical Psychology, 41, 331–347.

Greenaway, K. H., Haslam, S. A., & Bingley, W. (2018). Are “they” out to get me? A social identity model of paranoia. *Group Processes & Intergroup Relations*, 1368430218793190.

Greenaway, K., Haslam, S.A., Branscombe, N.R., Cruwys, T., Ysseldyk, R., & Heldreth, C. (2015). From "we" to "me": Group identification enhances perceived personal control with consequences for health and well-being. *Journal of Personality and Social Psychology*, 109(1), 53–74.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual differences in implicit cognition: the implicit association test. Journal of personality and social psychology, 74(6), 1464.

Halpern, D., & Nazroo, J. (2000). The ethnic density effect: results from a national community survey of England and Wales. *International Journal of Social Psychiatry*, *46*(1), 34-46.

Harrison, G., Owens, D., Holton, A., Neilson, D., & Boot, D. (1988). A prospective study of severe mental disorder in Afro-Caribbean patients. *Psychological medicine*, *18*(3), 643-657.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling.

Hitch, P. J., & Rack, P. H. (1980). Mental illness among Polish and Russian refugees in Bradford. *The British Journal of Psychiatry*, *137*(3), 206-211.

Janssen, I., Hanssen, M., Bak, M. L. F. J., Bijl, R. V., De Graaf, R., Vollebergh, W., ... & Van Os, J. (2003). Discrimination and delusional ideation. *The British Journal of Psychiatry*, *182*(1), 71-76.

Jetten, J., Haslam, S. A., Cruwys, T., Greenaway, K. H., Haslam, C., & Steffens, N. K. (2017). Advancing the social identity approach to health and well-being: Progressing the social cure research agenda. *European Journal of Social Psychology*, *47*(7), 789-802.

Kaney, S., & Bentall, R. P. (1989). Persecutory delusions and attributional style. *British Journal of Medical Psychology*, *62*(2), 191-198.

Kinderman, P., & Bentall, R. P. (1996). Self-discrepancies and persecutory delusions: evidence for a model of paranoid ideation. *Journal of abnormal psychology*, *105*(1), 106.

Kinderman, P., & Bentall, R. P. (1997). Causal attributions in paranoia and depression: internal, personal, and situational attributions for negative events. *Journal of abnormal psychology*, *106*(2), 341.

Kumar, K. (2003). *The making of English national identity*. Cambridge University Press.

Lasar, M. (1997). Cognitive evaluation of action in chronic schizophrenia-Locus of control beliefs in an inpatient group. *Psychologische Beitrage*, *39*, 297-311.

Levenson, H. (1972). Scale to Measure Three Aspects of Locus of Control. *Unpublished manuscript. Texas A&M University*.

Lovallo, W. R., & Thomas, T. L. (2000). Stress Hormones in Psychophysiological Research In: Cacioppo JT, Tassinary LG, Berntson GG (editors). Handbook of Psychophysiology.

McIntyre, J. C., Elahi, A., & Bentall, R. P. (2016). Social identity and psychosis: Explaining elevated rates of psychosis in migrant populations. *Social and Personality Psychology Compass*, *10*(11), 619-633.

McIntyre, J. C., Wickham, S., Barr, B., & Bentall, R. P. (2017). Social identity and psychosis: Associations and psychological mechanisms. *Schizophrenia Bulletin*, *44*(3), 681-690.

Melo, S., Corcoran, R., Shryane, N., & Bentall, R. P. (2009). The persecution and deservedness scale. *Psychology and Psychotherapy: Theory, Research and Practice*, *82*(3), 247-260.

Mendoza-Denton, R., & Page-Gould, E. (2008). Can cross-group friendships influence minority students' well-being at historically white universities? *Psychological Science*, *19*(9), 933-939.

Mirowsky, J., & Ross, C. E. (1983). Paranoia and the structure of powerlessness. *American Sociological Review*, 228-239.

Murphy, P., Bentall, R. P., Freeman, D., O'Rourke, S., & Hutton, P. (2018). The paranoia as defence model of persecutory delusions: a systematic review and meta-analysis. *The Lancet Psychiatry*, *5*(11), 913-929.

Page-Gould, E., Mendoza-Denton, R., & Tropp, L. R. (2008). With a little help from my cross-group friend: Reducing anxiety in intergroup contexts through cross-group friendship. *Journal of personality and social psychology*, *95*(5), 1080.

Peterson, C., Semmel, A., Von Baeyer, C., Abramson, L. Y., Metalsky, G. I., & Seligman, M. E. (1982). The attributional style questionnaire. *Cognitive therapy and research*, *6*(3), 287-299.

Postmes, T., Haslam, S. A., & Jans, L. (2013). A single-item measure of social identification: Reliability, validity, and utility. *British journal of social psychology*, *52*(4), 597-617.

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and social psychology bulletin*, *27*(2), 151 161.

Rosenbaum, M., & Hadari, D. (1985). Personal efficacy, external locus of control, and perceived contingency of parental reinforcement among depressed,

paranoid, and normal subjects. *Journal of Personality and Social Psychology*, *49*(2), 539.

Sam, D. L., & Berry, J. W. (2010). Acculturation: When individuals and groups of different cultural backgrounds meet. *Perspectives on Psychological Science*, *5*(4), 472-481.

Sani, F., Wakefield, J. R., Herrera, M., & Zeybek, A. (2017). On the association between greater family identification and lower paranoid ideation among non-clinical individuals: evidence from Cypriot and Spanish students. *Journal of Social and Clinical Psychology*, *36*(5), 396-418.

Schofield, P., Thygesen, M., Das-Munshi, J., Becares, L., Cantor-Graae, E., Agerbo, E., & Pedersen, C. (2018). Neighbourhood ethnic density and psychosis—Is there a difference according to generation? *Schizophrenia research*, *195*, 501-505.

Sharif, S. P. (2017). Locus of control, quality of life, anxiety, and depression among Malaysian breast cancer patients: The mediating role of uncertainty. *European Journal of Oncology Nursing*, *27*, 28-35.

Sitko, K., Bentall, R. P., Shevlin, M., & Sellwood, W. (2014). Associations between specific psychotic symptoms and specific childhood adversities are mediated by attachment styles: an analysis of the National Comorbidity Survey. *Psychiatry research*, *217*(3), 202-209.

Thewissen, V., Bentall, R. P., Lecomte, T., van Os, J., & Myin-Germeys, I. (2008). Fluctuations in self-esteem and paranoia in the context of daily life. *Journal of abnormal psychology*, *117*(1), 143.

Thomas, J., Bentall, R. P., Hadden, L., & O'Hara, L. (2017). Ethnic identity and paranoid thinking: Implicit out-group preference and language dominance predict paranoia in Emirati women. *Journal of behavior therapy and experimental psychiatry*, *56*, 122-128.

Veling, W., Selten, J. P., Susser, E., Laan, W., Mackenbach, J. P., & Hoek, H. W. (2007). Discrimination and the incidence of psychotic disorders among

ethnic minorities in The Netherlands. *International Journal of Epidemiology*, *36*(4), 761-768.

Westermeyer, J. (1989). Paranoid symptoms and disorders among 100 among refugees: a longitudinal study. *Acta Psychiatrica Scandinavica*, *80*(1), 47-59.

Yeh, C. J. (2003). Age, acculturation, cultural adjustment, and mental health symptoms of Chinese, Korean, and Japanese immigrant youths. *Cultural Diversity and Ethnic Minority Psychology*, *9*(1), 34.

Chapter 8: The Importance of Implicit Measures of Ethnic Identity and Perceived Discrimination in Ethnic Minority Populations

8.1 Implicit Measures of Identity and Perceived Discrimination in Ethnic Minority Populations

Previous chapters in my thesis have found that all individuals experience paranoia to some degree. It was also found that strong social identities protect individuals from high levels of paranoia. This protection was extended to African-Caribbean individuals who experienced low levels of negative contact with the majority White British population but strongly identified as being British. Therefore, it could be suggested that identification is actually a double-edged sword; its effects are not always beneficial but depend on the contact people experience with others who also identify with the same group.

The next chapter will assess whether similar effects are apparent in another ethnic minority population in Britain: students of Pakistani heritage who were born in England. However, instead of assessing individual's explicit level of British identity as a moderator between negative contact with the White majority population and paranoia, the study will extend the approach taken earlier by assessing both explicit and implicit Pakistani and English identities as potential moderators of the association between perceived discrimination and paranoia. Identities have been measured explicitly in my thesis previously (neighbourhood identity in Chapter 5 and ethnic identity in Chapter 7) and it involves specifically asking participants questions about their feelings towards a particular group. However, the aim of testing identity implicitly involves assessing participants' attitudes without accessing their conscious awareness. It is important to assess identity in both these ways because participants' may not respond truthfully to explicit measures alone.

Discrimination is defined as "the unjust or prejudicial treatment of different categories of people, especially on the grounds of race, age, or sex." (Oxford Dictionary, 2019). Therefore, discrimination is usually perceived as one of the more severe types of negative contact. Discrimination also differs from prejudice, in that, discrimination refers to how someone is behaviourally treated but prejudice refers to the attitudes that people hold against other individuals or groups of people. This study will assess participants' thoughts on how much they feel that themselves and their Pakistani ethnic group are discriminated against.

It has been suggested that positive ethnic identification is partly maintained by attributing discrimination to other ethnic groups (Oakes & Turner, 1980; Hornsey & Hogg, 2000). The rejection-identification model (Branscombe, Schmitt & Harvey, 1999) was proposed to explain how attributions of discrimination, from majority towards minority groups and their members, can lead to minority group members identifying with their ingroup more strongly. This supports the notion that identification is stronger when individuals perceive a threat or rejection from an outside group, as people naturally seek a sense of belonging to sustain their self-esteem and well-being (Baumeister & Leary, 1995; Lee & Robbins, 1998). Therefore, a strong ethnic identity may be a protective response to reducing levels of paranoia which are associated with an individual's perception of discrimination against their ethnic group.

Support for the rejection–identification model has been found for a variety of ethnic minority populations (Branscombe et al., 1999; Tropp & Wright, 1999; McCoy & Major, 2003; Operario & Fiske, 2001). However, some cross-sectional and longitudinal correlation studies found no or negative correlations between discrimination and ethnic identification for some ethnic groups including; East Asian immigrants (Barry & Grilo, 2003), Korean American students (Lee, 2005), Asian Americans (Lee, 2003) and Asian and Latino students (Sears, Fu, Henry, & Bui, 2003). Several reasons have been posited for why increased discrimination might not result in stronger levels of ethnic identification. For example, if someone experiences discrimination due to their ethnicity, they may begin to devalue their ethnic identity (Crocker & Major, 1989), resulting in lower levels of ethnic identification. This notion of people devaluing their own identities after internalising the negative beliefs and attitudes of others is known as self-stigmatising (Corrigan & Rao, 2012). In light of these discrepancies in research findings, it is important to further assess the relationship between discrimination/perceived discrimination and ethnic identification in various ethnic groups.

The strength of an individual's ethnic identification can vary depending on the ethnic density of the place in which they reside; in areas where a low number of ethnic minority individuals reside, individuals of ethnic minority groups are likely to exhibit higher rates of psychosis (Halpern & Nazroo, 2000; Boydell et al., 2001). A population-based study by Bécares, Nazroo and Stafford (2009) found that ethnic density and psychosis were negatively associated. They noted that high ethnic density

areas (in which the majority of people are of the same ethnicity) can facilitate the development of social networks within ethnic minority groups, and thereby possibly, help to mitigate some of the negative effects of discrimination and racism on health. This was further supported by a meta-analysis which found that incidences of psychotic disorders were higher in low ethnic density areas in comparison to high ethnic density areas (Bosqui, Hoy & Shannon, 2014). Crucially, in this study, participants from high ethnic density areas experienced less racism and a weaker association between racism and health was evident as ethnic density increased.

To test the association between perceived discrimination, ethnic identity and paranoia, students of Pakistani heritage, who were born in England, were assessed. Werbner (2005) identified Britain as being one of the earliest homes to Pakistani immigrants and noted that British Pakistanis are the largest and the most prominent of all international Pakistani communities. This minority group has a high prevalence of psychotic symptoms; second only to Black-Caribbean individuals (King et al., 2005). Hence, they represent a prominent ethnic minority group within the British population and determining the mechanisms that may impact their mental health could have important public health implications. As in Chapter 7, participants' explicit ethnic identities were examined by directly asking participants how they feel about Pakistan/England and Pakistani/English people. The data was self-reported. However, in the next chapter implicit ethnic identity will also be assessed. Again, participants' Pakistani and English identities were assessed but, in this case, participants were asked to respond to a set of words which followed pictures that represented the two ethnic groups (Pakistani and English) currently being examined. Participants' reaction times to the words were measured (see Chapter 9 for a detailed description of the implicit measure).

As previously stated in this chapter, implicit assessments assess attitudes without accessing participants' conscious awareness. This helps to remove any demand characteristics participants may display. For example, when assessing explicit ethnic identities, participants may answer according to what they believe they should feel about their ethnic group rather than their true feelings. Therefore, an implicit measure, as adopted by Thomas, Bentall, Hadden and O' Hara (2017), should help to capture a more accurate understanding of whether participants identify as English/Pakistani/both. Also differing from Chapter 7, the next chapter examines the

English rather than British identity of participants which have been described as differing from one another (Kumar, 2003) as Britain is made up of several countries which all English people may not identify with. Due the differences between British and English identities, it is important to assess whether the effects apparent when assessing individuals' British identities are also apparent when measuring the English identities of individuals from ethnic minority groups.

To conclude, the next chapter reports on a study that assessed perceived discrimination, explicit Pakistani identity, explicit English identity, implicit Pakistani identity, implicit English identity and levels of paranoia in students of Pakistani heritage, born in England. The students attended a college that is in an area occupied by a large proportion of individuals from a Pakistani background. The four measures of identification will be tested as moderators of the relationship between perceived discrimination and paranoia.

8.2 References

Barry, D. T., & Grilo, C. M. (2003). Cultural, self-esteem, and demographic correlates of perception of personal and group discrimination among East Asian immigrants. *American Journal of Orthopsychiatry*, *73*(2), 223-229.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin*, *117*(3), 497.

Bécares, L., Nazroo, J., & Stafford, M. (2009). The buffering effects of ethnic density on experienced racism and health. *Health & place*, *15*(3), 700-708.

Bosqui, T. J., Hoy, K., & Shannon, C. (2014). A systematic review and meta-analysis of the ethnic density effect in psychotic disorders. *Social psychiatry and psychiatric epidemiology*, *49*(4), 519-529.

Boydell, J., Van Os, J., McKenzie, K., Allardyce, J., Goel, R., McCreadie, R. G., & Murray, R. M. (2001). Incidence of schizophrenia in ethnic minorities in London: ecological study into interactions with environment. *Bmj*, *323*(7325), 1336.

Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimination among African Americans: Implications for group identification and well-being. *Journal of personality and social psychology*, *77*(1), 135.

Crocker, J., & Major, B. (1989). Social stigma and self-esteem: The self-protective properties of stigma. *Psychological review*, *96*(4), 608.

Halpern, D., & Nazroo, J. (2000). The ethnic density effect: results from a national community survey of England and Wales. *International Journal of Social Psychiatry*, *46*(1), 34-46.

Hornsey, M. J., & Hogg, M. A. (2000). Assimilation and diversity: An integrative model of subgroup relations. *Personality and Social Psychology Review*, *4*(2), 143-156.

King, M., Nazroo, J., Weich, S., McKenzie, K., Bhui, K., Karlson, S., ... & McManus, S. (2005). Psychotic symptoms in the general population of England. *Social psychiatry and psychiatric epidemiology*, *40*(5), 375-381.

Kumar, K. (2003). *The making of English national identity*. Cambridge University Press. UK.

Lee, R. M. (2003). Do ethnic identity and other-group orientation protect against discrimination for Asian Americans? *Journal of Counseling Psychology*, *50*(2), 133.

Lee, R. M. (2005). Resilience against discrimination: ethnic identity and other-group orientation as protective factors for Korean Americans. *Journal of Counseling Psychology*, *52*(1), 36.

Lee, R. M., & Robbins, S. B. (1998). The relationship between social connectedness and anxiety, self-esteem, and social identity. *Journal of Counseling Psychology*, *45*(3), 338-345.

McCoy, S. K., & Major, B. (2003). Group identification moderates emotional responses to perceived prejudice. *Personality and Social Psychology Bulletin*, *29*(8), 1005-1017.

Oakes, P. J., & Turner, J. C. (1980). Social categorization and intergroup behaviour: Does minimal intergroup discrimination make social identity more positive? *European Journal of Social Psychology*, *10*(3), 295-301.

Operario, D., & Fiske, S. T. (2001). Effects of trait dominance on powerholders' judgments of subordinates. *Social Cognition*, *19*(2), 161-180.

Thomas, J., Bentall, R. P., Hadden, L., & O'Hara, L. (2017). Ethnic identity and paranoid thinking: Implicit out-group preference and language dominance predict paranoia in Emirati women. *Journal of behavior therapy and experimental psychiatry*, *56*, 122-128.

Tropp, L. R., & Wright, S. C. (1999). Ingroup identification and relative deprivation: An examination across multiple social comparisons. *European Journal of Social Psychology*, *29*(5-6), 707-724.

Werbner, P. (2005). Pakistani migration and diaspora religious politics in a global age. *Encyclopedia of diasporas: Immigrant and refugee cultures around the world*, 475-484.

Chapter 9: Paranoia experienced by Students of Pakistani Heritage in England: The Role of Explicit and Implicit Identities and Perceived Discrimination

9.1 Abstract

Previous studies have found that individuals belonging to an ethnic minority group are more likely to experience psychosis if they live in geographical areas which are low in ethnic density. Here, I suggest that this may, in part, be due to social identity processes. I examined the relationship between perceived discrimination and paranoia and assessed whether this relationship is moderated by levels of explicit and implicit Pakistani/English identification amongst students who were born in England and are of Pakistani heritage (N=119). The participants completed explicit measures of Pakistani and English identity, an implicit measure of both Pakistani and English identity, a measure of perceived discrimination and a measure of paranoia. Explicit Pakistani identity was negatively associated with paranoia whilst perceived discrimination was positively associated with paranoia and was the strongest predictor of paranoia in this sample. The results indicated that implicit Pakistani identification moderated the relationship between perceived discrimination and paranoia, such that, high levels of perceived discrimination are associated with paranoia when implicit Pakistani identification is low. The findings suggest that for students of Pakistani heritage, who are born in England and feel discriminated against, to present low levels of paranoia, they must implicitly identify with their Pakistani ethnic group.

9.2 Introduction

A key focus of my thesis has been the elevated rates of psychosis in ethnic minority groups. The importance of the ethnic density effect has been highlighted, this refers to the higher prevalence of psychosis in ethnic minority groups when they live in relative isolation from other members of their ethnic group (Halpern & Nazroo, 2000). Two possible factors responsible for this effect are discrimination and a lack of belonging, which McIntyre, Elahi and Bentall (2016) suggest increase an individual's vulnerability to the development of psychosis.

People have a basic need to belong and identify with social groups (Tajfel & Turner, 1979) as this helps to protect their self-esteem (Veling et al., 2008; Bosqui, Hoy & Shannon, 2014) which was found to mediate the relationship between financial stress and paranoia via neighbourhood identity, as reported in Chapter 5. Sam and Berry (2010) suggested that moving between cultures can lead to cultural as well as psychological changes which result in one of four acculturation strategies (Berry & Kim, 1988). The first is *integration.* This had the best effects on mental health and refers to the notion that immigrants who identify with their new place of residence whilst also maintaining identification with their heritage culture would be the least at risk of developing mental illnesses. Thus, not identifying with the culture of the place that an individual lives in can contribute to increased levels of psychotic symptoms, such as paranoia (McIntyre et al., 2016).

The other acculturation strategies noted by Berry and Kim are *separation*, *assimilation* and *marginalisation*; all of which lead to poor mental health outcomes. Separation refers to an individual rejecting their new culture in favour of retaining their original culture. Assimilation is the process by which individuals embrace their new culture but disidentify with their previous one and marginalisation refers to a rejection of both an individual's new and original culture. Marginalisation is associated with the worst mental health outcomes (Berry, Kim, Minde & Mok, 1987; Yeh, 2003). An individual not fitting in with their environment can present as a reciprocal relationship; poor integration may lead to poor mental health (Sands & Berry, 1993) but poor mental health can also impact on the process of acculturation, making it difficult for individuals to successfully integrate into their new surroundings (Granerud & Severinsson, 2006).

The importance of assessing delusions in the Pakistani population can be highlighted in a study in England which found that 9.9% of Pakistani participants

reported to suffering from at least one psychotic symptom (King et al., 2005). Additionally, Suhail and Cochrane (2002) compared the phenomenology of delusions in Pakistani people living in Britain, Pakistani people living in Pakistan and White British participants. Comparisons indicated greater differences in the content of delusions between the Pakistani people in Pakistan and the Pakistani people in Britain in comparison to the White British group. This highlights that as well as different ethnic groups experiencing varying levels of paranoia, there are also differences in the content of such symptoms within the same ethnic group, and this may be due to the environment individuals are living in.

In the current study, students born in England and of Pakistani heritage will be assessed. The participants live in an area where there is a high proportion of Pakistani-heritage individuals. All the students attend the same college in a town in East Lancashire. In this town, approximately 40.4% of inhabitants are a combination of British South Asian (born in Britain and of South Asian heritage) or South Asian (born in South Asia and moved to Britain) and approximately 37.6% of the population are Muslim (Office for National Statistics, 2011).

9.2.1 The Role of Discrimination

In Chapter 7, negative contact with the White British majority (Allport, 1954) was identified as one possible reason for why people of ethnic minority groups are at a higher risk of developing psychotic symptoms. However, as detailed in Chapter 8 another phenomenon which is related to contact and may also help to explain elevated rates of psychosis among ethnic minority groups is perceived discrimination. The harmful effects of discrimination on health have been documented by both laboratory and field studies. They have concluded that discrimination is associated with a range of mental health issues including: elevated depression, psychological distress, anxiety; and reduced well-being (Williams, Neighbors, & Jackson, 2003; Paradies, 2006). Additionally, perceived discrimination has been linked to many health problems in several studies. These health problems include specific types of physical health problems, such as hypertension, self-reported poor health, and breast cancer, as well as a being potential risk factor for obesity, high blood pressure, and substance misuse (see Williams & Mohammed, 2009 for a comprehensive review).

In terms of psychosis, some studies have suggested that discrimination is associated with all the positive symptoms of psychosis (Cooper et al., 2008) and some

have highlighted a specific association between discrimination and non-clinical paranoia (Wickham, Taylor, Shevlin & Bentall, 2014), but not clinical levels of paranoia (Rippy & Newman, 2006; Combs, 2006). One study examined the relationship between perceived ethnic discrimination and paranoia in individuals at Ultra High Risk (UHR) for psychosis using a virtual reality paradigm to objectively measure paranoia. They concluded that perceived ethnic discrimination was higher in young adults at UHR for psychosis in comparison to healthy controls. Additionally, within the whole sample, perceived ethnic discrimination was found to be positively associated with paranoia. Such findings are in line with biopsychosocial models which highlight that psychosocial adversity, such as discrimination, is at the heart of the development of psychotic symptoms (Bentall et al., 2001).

Furthermore, Rippy and Newman (2006) measured perceived discrimination and levels of paranoia in a sample consisting of Muslim Americans. A significant relationship was found between perceived religious discrimination and subclinical levels of paranoia. Additionally, experiences of discrimination were also found to be associated with subclinical levels of psychosis in adolescents of ethnic minority groups; a relationship which was attenuated in those individuals who identified most strongly with their own ethnic group (Anglin et al., 2016). Such findings illustrate how the discrimination that people from ethnic minority backgrounds perceive they are facing is associated with increased levels of paranoia.

I sought to build on findings in the perceived discrimination literature to determine if the relationship between perceived discrimination and paranoia is influenced by explicit and implicit ethnic identities in a sample of students, of Pakistani heritage, who were born in England. The participants were investigated as this minority group has high rates of mental health issues and the college which they attend is situated in a highly dense Pakistani area, suggesting that the effects of ethnic density could be examined indirectly.

Participants' implicit and explicit English and Pakistani identities will be assessed. As aforementioned, implicit measures may be important as they remove demand characteristics from the study and this may provide a more accurate measure of ethnic identification. There are a number of implicit measures that have been utilised in previous studies. The Implicit Association Test (IAT; Greenwald, McGhee

& Schwartz (1998) has been used in numerous studies to measure the strength of associations between concepts. It has been suggested that the IAT has relatively weak internal consistency and reliability (α= .60; Nosek, Greenwald & Banaji, 2005) and to my knowledge, it has not been implemented in any studies that assess the strength of individuals' ethnic identity.

Another implicit measure is the Affect Misattribution Procedure (AMP; Payne, Cheng, Govorun & Stewart, 2005). This measures participants' responses that are activated automatically due to the misattributions people make about the sources of their cognitions. There is growing evidence to highlight the reliability and validity of this measure (Payne & Lundberg, 2014) but to my knowledge, the AMP has not been used to test the strength of ethnic identities either.

Although the reliability of the Affective Priming Task (APT; Thomas, Bentall, Hadden & O' Hara, 2017) is unknown, this is a measure which has been used to assess ethnic identities (description below). Thomas et al. (2017) assessed the implicit Emirati and American identification of female Emirati students in the United Arab Emirates (UAE). The participants were studying at an American University in the UAE. The results illustrated that implicit Emirati identification was associated with lower levels of paranoia and implicit American identification was associated with higher levels of paranoia. Therefore, for participants to exhibit low levels of paranoia, they needed to implicitly identify with their place of residence and the culture they live in. However, the present study assessed whether this was true for an ethnic minority group living in an ethnically dense town in England.

9.2.2 The Present Research

Here, I assessed whether explicit Pakistani identification, explicit English identification, implicit Pakistani identification and implicit English identification attenuated the negative effects of perceived discrimination on paranoia amongst students of Pakistani heritage, who were born in England. I hypothesised that this relationship would be moderated by levels of explicit and implicit Pakistani identification, such that high levels of paranoia would be associated with high levels of perceived discrimination when participants experienced low explicit and implicit Pakistani identification. I also hypothesised that high levels of explicit and implicit English identification would exacerbate the relationship between perceived

discrimination and paranoia. This would mean that students who perceive that they are strongly discriminated against and identify explicitly or implicitly as being English would exhibit higher levels of paranoia.

9.3 Methods

9.3.1 Participants and Design

An a priori G* power calculation (Faul & Erdfelder, 1992) for multiple regression (total r^2 different from zero) was conducted assuming a total effect size of 0.15 (this is conservative and based on the correlation between implicit identity and paranoia observed in Thomas et al. 2017, which was 0.16). We assumed five predictors (discrimination, two measures of identity, and two interactions between the identity measures and discrimination). This calculation suggested a minimum required sample size of 116 participants with power (1 - β) set at 0.90 and α =.05. All participants were students at a higher education college in Lancashire and aged between 16-18 years old. The inclusion criteria specified that participants must be born in England and have at least one parent who is of Pakistani heritage, irrespective of what generation immigrant they were, which was not recorded for. A total of 127 participants were recruited. Participants were excluded if they had an error rate of 20% or above on the Affective Priming Task (see below), predetermined as indicating a lack of effort or poor understanding of the task; 8 (6.3%) participants were excluded on this basis, leaving a final sample of 119 participants. There were 48 males (40.3%) and 71 females (59.7%). Two participants reported to being in contact with mental health services. All the participants were entered into a prize draw, with 8 participants (4 males and 4 females) winning vouchers worth £25.

9.3.2 Measures

9.3.2.1 Affective Priming Task

Participants' implicit identities were measured using the Affective Priming Task (APT). In this task, participants were required to respond to positive and negative words which were primed by pictures that represented either English or Pakistani identities. As noted by Plant et al. (2009), faster responses to positive words that appeared after pictures which primed the identity of a particular group indicated a preference for this group (in this case, faster responses to positive words that followed Pakistani primes indicated Pakistani identification and faster responses to positive words that followed English primes indicated English identification). Participants may

identify with both ethnic groups, thus, the two constructs were measured independently.

The primes (see Appendix F) were 12 pictures that represented the English ethnic group (e.g. the England flag) and 12 pictures that represented the Pakistani ethnic group (e.g. the Pakistani flag). These pictures were selected following a pilot test with 20 individuals who, like the current participants, identified as being of Pakistani heritage and born in England. These participants were over the age of 18 and were not research participants. They were recruited using an opportunity sample in the same town as the higher education institute that the participants were recruited from. The individuals were shown 20 pictures representing Pakistani culture and 20 pictures representing English culture and were asked to rate them on a seven-point Likert scale depending on how representative they were of the two ethnic groups. The response options ranged from *1 = not at all* to *7 = completely*. The 12 English and 12 Pakistani images that were rated as being the most representative of the respective ethnic groups were then included in the APT. All images were presented in black and white to prevent colour from influencing participants' responses.

The positive (e.g. fun) and negative (e.g. hate) words which followed the images were selected from the Affective Norms for English Words (Bradley & Lang, 1999) and had been used in previous APT studies (e.g. Thomas et al., 2017). The lengths of the positive (M = 6.08, SD = 2.23) and negative words (M = 6.16, SD = 1.89) did not differ (t (22) = 0.2, $p > 0.05$). Two APT performance scores were calculated for each participant; one for implicit Pakistani identity and one for implicit English identity. The scores were calculated in line with the proposal of Wentura and Degner (2010). The score formulae used were: APT score (for Pakistani identity) = (median response time (RT) for negative target words following Pakistani images - median RT for positive target words following Pakistani images). APT score (for English identity) = (median RT for negative target words following English images - median RT for positive target words following English images). Based on these formulae a positive APT score indicated strong implicit Pakistani/English identification.

9.3.2.2 Explicit Pakistani Identity

Participants' explicit Pakistani identity was measured using the Four-Item measure of Social Identification (FISI; Postmes, Haslam & Jans, 2013). For each of the four questions, participants indicated on a seven-point scale the extent to which

they identified with the Pakistani ethnic group e.g. “I am glad to be Pakistani.” Response options ranged from 1 = *disagree completely* to 7 = *agree completely.*

9.3.2.3 Explicit English Identity

Participants’ explicit English identity was also measured using the same Four-Item measure of Social Identification (FISI; Postmes, Haslam & Jans, 2013).

9.3.2.4 Paranoia

Paranoia was assessed using the 10-item persecution subscale of the persecution and deservedness scale (PaDS; Melo, Corcoran, Shryane, & Bentall, 2009). Participants rated their agreement on a five-point scale with statements such as “I’m often suspicious of other people’s intentions towards me” and “You should only trust yourself”. Response options ranged from 1 = *strongly disagree* to 5 = *strongly agree*. The level of internal consistency for the scale was satisfactory, (α =.84).

9.3.2.5 Current Mental Health

Participants’ current mental health was measured using a single-item: “Are you currently in contact with mental health services?” Response options were 1 = *yes* or 2 = *no*.

9.3.2.6 Perceived Discrimination

To assess perceived discrimination against the Pakistani ethnic group, participants rated their agreement with two statements using a six-point scale. The statements were: “My Pakistani ethnic group is discriminated against” and “Other members of my ethnicity (Pakistani) experience discrimination.” Response options ranged from 0 = *strongly disagree* to 6 = *strongly agree*.

9.3.2.7 Gender

Participants were asked to indicate whether they identified as being male or female. This was coded as *0 = male, 1 = female*.

9.3.3 Procedure

Ethical approval for the study was obtained from the University of Liverpool (reference number: 1898, see Appendix G). First, participants were given a Participant Information Sheet (see Appendix H) and were asked to provide their consent. Participants were asked to complete a demographic and current mental health information questionnaire. Next, participants completed a five-trial dummy run of the APT to ensure the task requirements were understood. After this initial trial, the APT was presented. For the first 300ms of each trial, a prime image was presented followed

by a positive/negative target word. The target word (e.g. love/hate) remained on the screen until participants either pressed the 'P' key for a positive word or the 'Q' key for a negative word. There were 96 trials in total; 48 positive prime images and 48 negative prime images. The computer generated a random sequence of the trials for each participant. The same words and prime images were used in the five-trial dummy run and in the APT. The APT was followed by the explicit identity measures and the perceived discrimination items. Finally, participants completed the PaDs.

9.3.4 Statistical Analyses

Descriptive statistics and bivariate correlations were calculated between the key variables: paranoia, explicit Pakistani identity, explicit English identity, implicit Pakistani identity, implicit English identity and perceived discrimination. A multiple linear regression was then conducted to explore the relative contribution of each independent variable in predicting paranoia.

As it has been theorised that strong social identification protects individuals from mental health issues (McIntyre et al., 2016), explicit Pakistani identity, explicit English identity (see Figure 9.1), implicit Pakistani identity and implicit English identity (see Figure 9.2) were tested as moderators of the relationship between perceived discrimination and paranoia. These moderation analyses were conducted using model 2 of the PROCESS extension (Hayes, 2012) in SPSS. Indirect effects were calculated via bootstrapping with 10000 resamples. Gender was included in the model as a covariate. All participants identified as being of Pakistani heritage and born in England, and were between 16-18 years old. Therefore, age and ethnicity were not included as covariates. The models being tested are shown in the figures below.

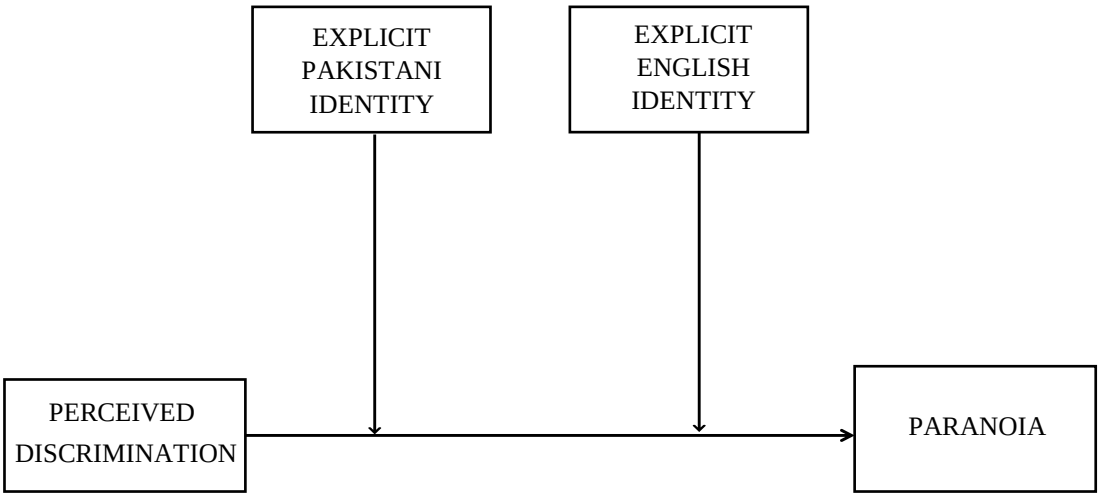


Figure 9.1. *Conceptual model of the moderated effect of explicit Pakistani identity and explicit English identity on the relationship between perceived discrimination and paranoia.*

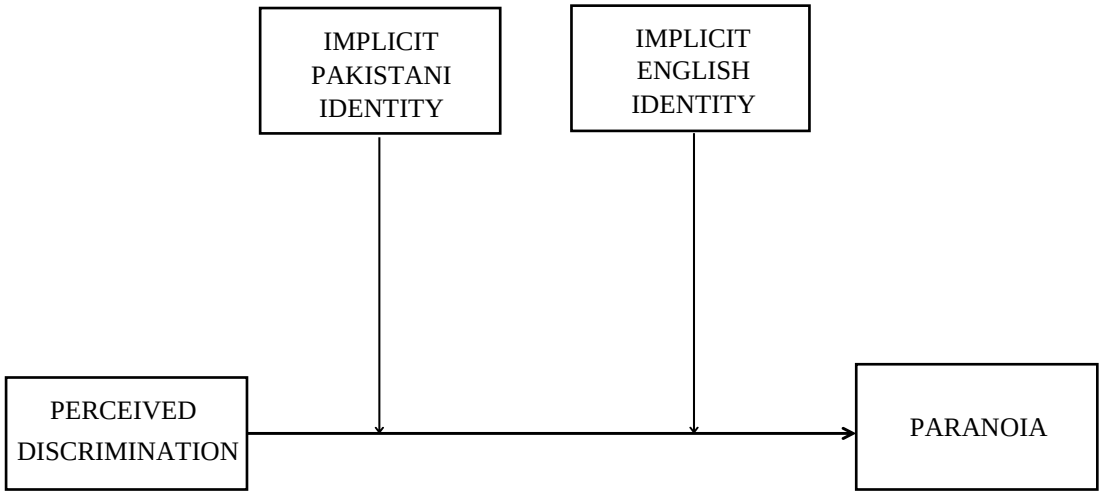


Figure 9.2. *Conceptual model of the moderated effect of implicit Pakistani identity and implicit English identity on the relationship between perceived discrimination and paranoia.*

9.4 Results

9.4.1 Preliminary Analyses

Means, standard deviations and zero-order correlations for the final sample are reported in Table 9.1. Paranoia was significantly negatively associated with explicit Pakistani identity and significantly positively associated with perceived discrimination. Explicit Pakistani identity was significantly positively associated with explicit English identity and implicit Pakistani identity was significantly positively associated with implicit English identity. All other associations were not significant.

Table 9.1. *Descriptive statistics and bivariate correlations between the variables.*

Variable	***M***	***SD***	1	2	3	4	5	6
1. Paranoia	11.33	7.41	-	-.19*	.02	.18	-.01	.31**
2. Explicit Pakistani identity	5.72	1.16	-	-	.39**	.11	-.01	.05
3. Explicit English identity	4.83	1.12	-	-	-	.01	-.11	.05
4. Implicit Pakistani identity	2.58	8.95	-	-	-	-	.18*	.01
5. Implicit English identity	1.06	10.62	-	-	-	-	-	.09
6. Perceived discrimination	2.89	1.54	-	-	-	-	-	-

* $p < .05$, ** $p < .01$

9.4.2 Regression

A multiple linear regression was conducted with paranoia entered as the criterion variable and explicit Pakistani identity, explicit English identity, implicit Pakistani identity, implicit English identity and perceived discrimination entered as predictors. A significant model was found F (5,113) = 5.33, $p < 0.001$, which explained 19% of the variance in the criterion. Explicit Pakistani identity (B = -1.70,

p = .005), implicit Pakistani identity (B = .22, p < .05) and perceived discrimination (B = 1.53, p < .001) were all found to significantly predict paranoia, with perceived discrimination being the strongest predictor. The coefficients suggest that low levels of explicit Pakistani identity, high levels of implicit Pakistani identity, and high levels of perceived discrimination were associated with paranoia. However, explicit English identity (B = .64, p = .28) and implicit English identity (B = -.05, p = .46) did not significantly predict paranoia.

9.4.3 Moderation Analyses

Table 9.2 shows the effects of perceived discrimination, explicit Pakistani identity, explicit English identity and gender on paranoia when all other variables in the model are held constant. It also includes the interactive effects of perceived discrimination with these measures. The analysis revealed that explicit Pakistani identity significantly predicted levels of paranoia independently of perceived discrimination. Inspection of the coefficients revealed a negative effect, suggesting that low levels of explicit Pakistani identity predicted high levels of paranoia, consistent with the regression analysis.

Table 9.3 illustrates the effects of perceived discrimination, implicit Pakistani identity, implicit English identity and gender on paranoia when all other variables in the model are held constant. The interactive effects of the implicit measures with perceived discrimination are also shown. The analysis revealed that perceived discrimination positively predicted paranoia, such that, high levels of perceived discrimination predicted high levels of paranoia. Implicit Pakistani identity also predicted levels of paranoia, independently of perceived discrimination; such that, high implicit Pakistani identification predicted high levels of paranoia. However, there was also a significant interaction effect of implicit Pakistani identity and perceived discrimination.

Table 9.4 shows the effect of perceived discrimination on paranoia at low (-1 SD) and high levels (+1 SD) of the two implicit identity moderators (implicit Pakistani identity and implicit English identity). It can be seen that perceived discrimination is associated more strongly with paranoia when implicit Pakistani identity is low. However, when implicit Pakistani identity is high, the effects are weaker or not significant. Hence, although there is a direct effect of implicit Pakistani identity on paranoia; high levels of implicit Pakistani identity seem to protect against the

paranoia-inducing effects of perceived discrimination, irrespective of levels of implicit English identity. However, there is a weaker effect of perceived discrimination on paranoia when participants' exhibited a combination of high implicit Pakistani and high implicit English identification. Therefore, should people exhibit high levels of discrimination but low levels of both implicit Pakistani and implicit English identities, they would also be protected against high levels of paranoia. It is important to note that this effect was weaker than the effects apparent at low levels of implicit Pakistani identification.

Table 9.2. *Unstandardised interactive effects of explicit Pakistani identity, explicit English identity and perceived discrimination on paranoia, adjusting for gender.*

		B	***(S.E.)***	***(95% CI)***
Paranoia On	Perceived Discrimination	-.07	2.03	-4.11, 3.96
	Explicit Pakistani identity	-2.63*	1.23	-5.06, -.20
	Perceived Discrimination X Explicit Pakistani identity	.38	. 39	-.40, 1.16
	Explicit English identity	1.07	1.26	-1. 42, 3.56
	Perceived Discrimination X Explicit English identity	-.12	.41	-.93, .69
	Gender	-1.47	1.29	-4.02, 1.08

* $p < .05$

Table 9.3. *Unstandardised interactive effects of implicit Pakistani identity, implicit English identity and perceived discrimination on paranoia, adjusting for gender.*

		B	***(S.E.)***	***(95% CI)***
Paranoia On	Perceived Discrimination	1.69***	.41	.86, 2.50
	Implicit Pakistani identity	.59**	.18	.22, .95
	Perceived Discrimination X Implicit Pakistani identity	-.17*	.07	-.31, -.04
	Implicit English identity	-.36	.19	-.74, .03
	Perceived Discrimination X Implicit English identity	.11	.06	-.01, .23
	Gender	-1.41	1.24	-3.88, 1.06

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 9.4. *Unstandardised direct effects of perceived discrimination on paranoia at low (-1 SD) and high (+1SD) levels of implicit Pakistani identity and implicit English identity.*

	B	***(S.E.)***	***(95% CI)***
Indirect effect at ***high*** **implicit Pakistani identity** and ***high*** **implicit English identity**	1.46*	.59	.28, 2.64
Indirect effect at ***high*** **implicit Pakistani identity** and ***low*** **implicit English identity**	.26	.58	-.89, 1.41
Indirect effect at ***low*** **implicit Pakistani identity** and ***high*** **implicit English identity**	2.98*	.67	1.65, 4.31
Indirect effect at ***low*** **implicit Pakistani identity** and ***low*** **implicit English identity**	1.78*	.53	.74, 2.83

* *95% CIs do not include zero.*

9.5 Discussion

In this study, I assessed whether explicit Pakistani identification, explicit English identification, implicit Pakistani identification and implicit English identification attenuated the negative effects of perceived discrimination on levels of paranoia amongst participants of Pakistani heritage who were born in England. I hypothesised that the relationship between perceived discrimination and paranoia would be moderated by explicit and implicit Pakistani identification, such that high levels of perceived discrimination would be associated with high levels of paranoia when participants experienced low levels of both explicit and implicit Pakistani identification. I also hypothesised that high levels of explicit and implicit English identity would exacerbate the relationship between perceived discrimination and paranoia, such that, students who perceive that they are strongly discriminated against and strongly identify explicitly and/or implicitly as being English would exhibit higher levels of paranoia.

Overall, the findings point to a more complex relationship between ethnic identity and paranoia than I had hypothesised at the outset. I found that implicit Pakistani identification moderated the relationship between perceived discrimination and paranoia, partially supporting my hypotheses. The conditional effects illustrated

that when perceived discrimination was high but implicit Pakistani identification was low, levels of paranoia were high, suggesting that implicit Pakistani identity protected the students from paranoia associated with perceived discrimination. Additionally, it was also found that when perceived discrimination was high, high levels of implicit Pakistani and implicit English identification were associated with high levels of paranoia. This suggests that low levels of implicit Pakistani identity may also protect against paranoia that is associated with perceived discrimination, but only when combined with low levels of implicit English identity. However, no support was found for high levels of explicit and implicit English identities contributing to heightened levels of paranoia when perceived discrimination was also high. Thus, my hypotheses were only partially supported.

Perceived discrimination and, unexpectedly, implicit Pakistani identity were found to independently and positively predict levels of paranoia whereas, as expected, explicit Pakistani identity was associated with lower levels of paranoia. Overall, the findings suggest that perceived discrimination is an important determinant of paranoia in students of Pakistani heritage, who are born in England and reside in areas which are high in ethnic density, and that this relationship is largely moderated by levels of implicit Pakistani identity.

It is interesting that high implicit Pakistani identification was independently associated with higher levels of paranoia. Although it is beyond the scope of the current study to determine the reasons for this finding, one possible interpretation relates to the negative stereotyping of Black and ethnic minority populations and to people of Muslim faith in the media and tabloid press in Western countries. Therefore, it may be that individuals who identify with these groups do not feel comfortable expressing their identification overtly and internalising this high level of identification, with a group that is often perceived negatively by others, may be detrimental independent of levels of perceived discrimination.

This may also explain the finding that explicit Pakistani identification is associated with lower levels of paranoia. Individuals who exhibit strong explicit Pakistani identity may not be affected by the negative opinions of others, so they are able to express their identity overtly. It is important to note that at this stage, alternative explanations and interpretations cannot be ruled out. The fact that high levels of implicit but low levels of explicit Pakistani identification were associated with higher

levels of paranoia appears to suggest an important discrepancy between implicit and explicit identity which supports the use of multiple identity measures. Additionally, in the implicit measure, the brightness and contrast of the images were not controlled for and may have affected the results. Therefore, it may be important to formally control for brightness and contrast in future studies that utilize the Affective Priming Task.

The findings support previous research that suggests that discrimination is associated with positive symptoms of psychosis (Cooper et al., 2008), in this case paranoia. Further research which found an association between discrimination and non-clinical levels of paranoia (Wickham, Taylor, Shevlin & Bentall, 2014) is also supported as only two participants (0.02% of the sample) had been diagnosed with a mental illness (although participants were not asked to specify whether they presented clinical levels of paranoia). Additionally, support has also been found for the notion that discrimination affects many mental health issues (Williams, Neighbors, & Jackson, 2003; Paradies, 2006; Rippy & Newman, 2007). However, in this case, higher levels of perceived discrimination were associated with increased paranoia but only when implicit Pakistani identification was low, or both Pakistani and English implicit identification were high. Therefore, it appears that it is not necessarily the case that high levels of psychosocial adversity lead to mental health problems (Bentall et al., 2001) but that psychosocial adversity in combination with low heritage ethnic identification or high heritage and birthplace identification contributes to adverse mental health issues in Pakistani students who were born in England.

Support was also found for the study by Thomas and colleagues (2017) as implicit Pakistani identification moderated the relationship between perceived discrimination and paranoia; hence, for participants to exhibit low levels of paranoia, they needed to implicitly identify with the culture and people who lived in the same geographical area as them. Another strength of the present study is that it assessed English instead of British identity, which as Kumar (2003) noted are two different concepts, with British identity being more complex as it encompasses several countries. However, this means that results may only be generalisable to Pakistani students living in England. The results may have been different had British identity been tested.

It is worth noting that the participants in the study by Thomas et al. were born and raised in the United Arab Emirates (UAE) and thus, their Emirati identity (explicit

and implicit) may have been stronger than the Pakistani identity of the students assessed in the present study as they were born in England. The Emirati population is the native population of the UAE so identifying with this ingroup both explicitly and implicitly served as a protective factor. Although, the students in the current study live in a town that has a large population of Pakistani individuals, they were born in and reside in a country where the majority population is White. This may also explain why the association between explicit Pakistani identification (found in the correlations and regression analyses) and paranoia was not found to be associated with levels of perceived discrimination. In addition, living in high ethnic density areas may not be as protective as living in a country where you form part of the majority group.

A potential avenue for future research could be to test the ethnic identities of Pakistani individuals who live in Pakistan but attend an English educational institute to gain more accurate and clear results about the importance of explicit and implicit Pakistani and English identities and their relationship to paranoia. It is also possible that another variable, which was not tested, explains this association or that participants answered the questions about their explicit identity incorrectly or according to what they believe they should say as all data was self-reported and not verified.

It is also interesting that neither explicit or implicit English identities were independently associated with perceived discrimination or paranoia, and that high implicit English identification was only associated with perceived discrimination and paranoia, when participants also had low levels of Pakistani identification. In the study by Thomas and colleagues, implicit American identification was associated with higher levels of paranoia. However, again, this may be due to the clarity between the ingroup (Emirati identification) and outgroup (American identification). It appears that in the current study; due to the participants being born in England but of Pakistani heritage, the distinction between the ingroup and outgroup is blurred. This would also make it difficult to distinguish which of Berry and Kim's (1988) acculturation strategies are most beneficial for this student sample because it is difficult to determine which of their cultures is their original one and which is their new one. Future research could more accurately assess this in a sample of first-generation Pakistani immigrants in England.

Additionally, in the present study, psychological mediators were not tested. It may have been interesting to assess whether self-esteem (see Chapter 5) and/or

powerful others LoC (see Chapter 7) would mediate the relationship between perceived discrimination and paranoia in this sample. Further to this, despite perceived discrimination being measured, negative contact with the White majority population may have also been examined (as in Chapter 7) as an independent variable to assess whether explicit/implicit Pakistani and English ethnic identities moderated the relationship between negative contact and paranoia. The study only assessed a student population, and therefore, results may not be generalisable to Pakistani individuals who were also born in England but are not current college students.

This study adopts a cross-sectional design and, therefore, provides a snapshot of the relationships between Pakistani and English explicit and implicit identification, perceived discrimination and paranoia in a student population. A longitudinal design would provide a better understanding of the importance of explicit and implicit ethnic identities in disrupting the pathway from perceived discrimination to paranoia. The finding that high levels of perceived discrimination are related to high levels of paranoia, when individuals exhibit low levels of implicit Pakistani identification, or high levels of both Pakistani and English identification, may lead to community level educational interventions that aim to help minority groups express their ethnic identification implicitly. For example, asking individuals of Pakistani ethnicity to think about their favourite things that are specific to their heritage culture (e.g. food, dances etc.) For individuals who identify with more than one ethnic group, they may also be encouraged to not strongly identify with either of the groups. However, the results suggest that this is not as beneficial as implicitly identifying with an individual's heritage group.

In addition to this, as explicit Pakistani identification was negatively associated with paranoia, it may be important for individuals of ethnic minority groups to maintain relationships with other people of their ethnic group so that they feel comfortable in expressing their heritage culture. For individuals that reside in areas that are geographically low in ethnic density, it might be important to establish relationships with other ethnic minority individuals outside of their own geographical area and feel they are able to explicitly identify with their ethnic group and heritage culture.

To conclude, this study found that high levels of perceived discrimination are associated with high levels of paranoia when people experience low levels of implicit Pakistani identification, or high levels of both implicit Pakistani and implicit English

identification. However, effects were stronger when individuals experienced low levels of implicit Pakistani identification, suggesting that high levels of Pakistani identification are most protective against paranoia that is associated with perceived discrimination. In addition, explicit Pakistani identification was found to be negatively associated with paranoia. However, the causal direction of this effect was unclear, and it was not moderated by perceived discrimination. Perceived discrimination was found to be the strongest predictor of paranoia. The findings extend current work on social identity and paranoia to a new population and further highlight the importance of intergroup relationships in stressor-identity-mental health processes.

9.6 References

Allport, G. W., Clark, K., & Pettigrew, T. (1954). The nature of prejudice.

Anglin, D. M., Lui, F., Espinosa, A., Tikhonov, A., & Ellman, L. (2018). Ethnic identity, racial discrimination and attenuated psychotic symptoms in an urban population of emerging adults. *Early intervention in psychiatry*, *12*(3), 380-390.

Bentall, R. P., Corcoran, R., Howard, R., Blackwood, N., & Kinderman, P. (2001). Persecutory delusions: a review and theoretical integration. *Clinical psychology review*, *21*(8), 1143-1192.

Berry, J. W., & Kim, U. (1988). Acculturation and mental health. In P. Dasen, J. W. Berry & N. Sartorius (Eds.), *Health And Cross-Cultural Psychology: Towards Application* (Vol. 12, pp. 207-236). London: Sage.

Berry, J. W., Kim, U., Minde, T., & Mok, D. (1987). Comparative studies of acculturative stress. *International migration review*, 491-511.

Bradley, M. M., & Lang, P. J. (1999). *Affective norms for English words (ANEW): Instruction manual and affective ratings* (Vol. 30, No. 1, pp. 25-36). Technical report C-1, the center for research in psychophysiology, University of Florida.

Bosqui, T. J., Hoy, K., & Shannon, C. (2014). A systematic review and meta-analysis of the ethnic density effect in psychotic disorders. *Social psychiatry and psychiatric epidemiology*, *49*(4), 519-529.

Combs, D. R., Penn, D. L., Cassisi, J., Michael, C., Wood, T., Wanner, J., & Adams, S. (2006). Perceived racism as a predictor of paranoia among African Americans. *Journal of Black Psychology*, *32*(1), 87-104.

Cooper, C., Morgan, C., Byrne, M., Dazzan, P., Morgan, K., Hutchinson, G., ... & Ismail, K. (2008). Perceptions of disadvantage, ethnicity and psychosis. *The British Journal of Psychiatry*, *192*(3), 185-190.

Corrigan, P. W., & Rao, D. (2012). On the self-stigma of mental illness: Stages, disclosure, and strategies for change. *The Canadian Journal of Psychiatry*, *57*(8), 464-469.

Discrimination. (2019). In *OxfordDictionaries.com*. Retrieved from https://en.oxforddictionaries.com/definition/discrimination.

Faul, F., & Erdfelder, E. (1992). GPOWER: A priori, post-hoc, and compromise power analyses for MS-DOS [Computer program]. *Bonn, FRG: Bonn University, Department of Psychology*.

Granerud, A., & Severinsson, E. (2006). The struggle for social integration in the community–the experiences of people with mental health problems. *Journal of Psychiatric and Mental Health Nursing*, *13*(3), 288-293.

Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual differences in implicit cognition: the implicit association test. Journal of personality and social psychology, 74(6), 1464.

Halpern, D., & Nazroo, J. (2000). The ethnic density effect: results from a national community survey of England and Wales. *International Journal of Social Psychiatry*, *46*(1), 34-46.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling.

Jetten, J., Haslam, S. A., Cruwys, T., Greenaway, K. H., Haslam, C., & Steffens, N. K. (2017). Advancing the social identity approach to health and well-being: Progressing the social cure research agenda. *European Journal of Social Psychology*, *47*(7), 789-802.

Kim, K. I., Li, D., Jiang, Z., Cui, X. J., Lin, L., Kang, J. J., ... & Kim, C. K. (1993). Schizophrenic delusions among Koreans, Korean-Chinese and Chinese: A transcultural study. *International Journal of Social Psychiatry*, *39*(3), 190-199.

King, M., Nazroo, J., Weich, S., McKenzie, K., Bhui, K., Karlson, S., ... & McManus, S. (2005). Psychotic symptoms in the general population of England. *Social psychiatry and psychiatric epidemiology*, *40*(5), 375-381.

Kumar, K. (2003). *The making of English national identity*. Cambridge University Press.

McIntyre, J. C., Elahi, A., & Bentall, R. P. (2016). Social identity and psychosis: Explaining elevated rates of psychosis in migrant populations. *Social and Personality Psychology Compass*, *10*(11), 619-633.

Melo, S., Corcoran, R., Shryane, N., & Bentall, R. P. (2009). The persecution and deservedness scale. *Psychology and Psychotherapy: Theory, Research and Practice*, *82*(3), 247-260.

Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2005). Understanding and using the Implicit Association Test: II. Method variables and construct validity. Personality and Social Psychology Bulletin, 31(2), 166-180.

Office for National Statistics. (2011). *Nelson Parish. Local Area Report.* London: Office for National Statistics.

Paradies, Y. (2006). A systematic review of empirical research on self-reported racism and health. *International journal of epidemiology*, *35*(4), 888-901.

Payne, B. K., Cheng, C. M., Govorun, O., & Stewart, B. D. (2005). An inkblot for attitudes: affect misattribution as implicit measurement. Journal of personality and social psychology, 89(3), 277.

Payne, K., & Lundberg, K. (2014). The affect misattribution procedure: Ten years of evidence on reliability, validity, and mechanisms. Social and Personality Psychology Compass, 8(12), 672-686.

Plant, E. A., Devine, P. G., Cox, W. T., Columb, C., Miller, S. L., Goplen, J., & Peruche, B. M. (2009). The Obama effect: Decreasing implicit prejudice and stereotyping. *Journal of Experimental Social Psychology*, *45*(4), 961-964.

Postmes, T., Haslam, S. A., & Jans, L. (2013). A single-item measure of social identification: Reliability, validity, and utility. *British journal of social psychology*, *52*(4), 597-617.

Rippy, A. E., & Newman, E. (2006). Perceived religious discrimination and its relationship to anxiety and paranoia among Muslim Americans. *Journal of Muslim Mental Health*, *1*(1), 5-20.

Sam, D. L., & Berry, J. W. (2010). Acculturation: When individuals and groups of different cultural backgrounds meet. *Perspectives on Psychological Science*, *5*(4), 472-481.

Sands, E. A., & Berry, J. W. (1993). Acculturation and mental health among Greek Canadians in Toronto. *Canadian Journal of Community Mental Health, 12*(2), 117-124.

Sears, D. O., Fu, M., Henry, P. J., & Bui, K. (2003). The Origins and Persistence of Ethnic Identity among the" New Immigrant" Groups. *Social Psychology Quarterly*, *66*(4 SPEC. ISS.), 419-437.

Suhail, K., & Cochrane, R. (2002). Effect of culture and environment on the phenomenology of delusions and hallucinations. *International Journal of Social Psychiatry*, *48*(2), 126-138.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The social psychology of intergroup relations*, *33*(47), 74.

Thomas, J., Bentall, R. P., Hadden, L., & O'Hara, L. (2017). Ethnic identity and paranoid thinking: Implicit out-group preference and language dominance predict paranoia in Emirati women. *Journal of behavior therapy and experimental psychiatry*, *56*, 122-128.

Veling, W., Susser, E., Van Os, J., Mackenbach, J. P., Selten, J. P., & Hoek, H. W. (2008). Ethnic density of neighbourhoods and incidence of psychotic disorders among immigrants. *American Journal of Psychiatry*, *165*(1), 66-73.

Wentura, D., & Degner, J. (2010). A practical guide to sequential priming and related tasks. *Handbook of implicit social cognition: Measurement, theory, and applications*, 95-116.

Wickham, S., Taylor, P., Shevlin, M., & Bentall, R. P. (2014). The impact of social deprivation on paranoia, hallucinations, mania and depression: the role of discrimination social support, stress and trust. *PLoS One*, *9*(8), e105140.

Williams, D. R., & Mohammed, S. A. (2009). Discrimination and racial disparities in health: evidence and needed research. *Journal of behavioral medicine*, *32*(1), 20-47.

Williams, D. R., Neighbors, H. W., & Jackson, J. S. (2003). Racial/ethnic discrimination and health: findings from community studies. *American journal of public health*, *93*(2), 200-208.

Yeh, C. J. (2003). Age, acculturation, cultural adjustment, and mental health symptoms of Chinese, Korean, and Japanese immigrant youths. *Cultural Diversity and Ethnic Minority Psychology*, *9*(1), 34.

Chapter 10: Discussion

10.1 General Discussion

The four empirical studies presented in my thesis address a number of important theoretical and clinical questions relating to the Social Identity Theory (SIT; Tajfel & Turner, 1979) which is part of the Social Identity Approach (SIA: Haslam, 2004; Postmes & Branscombe, 2010), and its utility for understanding experiences of paranoia in the community, and how social experiences shape persecutory beliefs in vulnerable populations. This chapter will aim to summarise and integrate the findings of the four studies, propose clinical and policy implications of the overall findings, address theoretical and empirical limitations, and discuss future potential research avenues within this area.

The primary goal of my thesis was to investigate whether the emergence and maintenance of paranoia in the general population could be understood using the SIT framework. Another goal of my thesis was to assess whether SIT principles could be applied to explain the elevated rates of paranoia in ethnic minority communities. These goals were addressed by, first, testing whether severe paranoia lies on a continuum with sub-clinical paranoid thoughts. Next, the relationship between financial stress and paranoia in both a general population and a student sample was examined. In the general population sample, individuals' neighbourhood identification was tested as a moderator of this relationship. However, in the student sample, participants' identification with their hometown and the place they had moved to for university (host town) were assessed as potential moderators of the same relationship. Investigations also explored whether this relationship was mediated by self-esteem.

The second half of my thesis focussed on the role of social experiences and social identities in the relationship between social stressors and paranoia in ethnic minority populations. Such groups are particularly likely to experience special difficulties and conflicts when identifying with Britain and their own ethnic groups (Berry & Kim, 1988). The relationship between negative contact with the White majority population and participants' levels of paranoia was examined in a sample of people living in Britain and of African-Caribbean heritage. It was also assessed whether participants' levels of British identity moderated this relationship. Both self-esteem and powerful others locus of control (LoC) were tested as mediators of this relationship. The final study examined whether ethnic identities buffered students

against paranoia, which was associated with perceived discrimination. The students were born in England and of Pakistani heritage. Participants' Pakistani and English identities were assessed both explicitly and implicitly.

10.2 Specific Findings

In Chapter 1, I provided a review of relevant literature and outlined the theoretical framework and rationale for this body of research. I detailed the prevalence of psychosis in the wider community and vulnerable populations, such as, ethnic minority groups, and provided different explanations that have been proposed to explain these rates. The principles of the SIT were discussed, and research on the social determinants of psychosis was explored to assess how identification might influence paranoid thoughts. In Chapter 2, I outlined the importance of assessing the distribution of paranoia, which was then examined in Chapter 3. For this purpose, I used data from several published and unpublished studies. The sample comprised general population participants, individuals with an at-risk mental status (ARMS) and patients who had been clinically diagnosed. This was the most comprehensive test of the continuum hypothesis to date based on the sample diversity and the novel method of analysis. Taxometric methods (Meehl, 1995) were used to determine whether paranoia is categorical or dimensional in nature. Consistent with previous findings (Freeman et al., 2005; Bebbington et al., 2013), it was found that severe paranoia existed on a continuum with healthy functioning. This suggested that paranoia should be conceptualised as a dimensional construct, that people with clinical levels of paranoia sit at one end of this continuum, and that it is appropriate to examine the determinants of paranoia in non-clinical samples.

In Chapter 4, I discussed the SIA (Haslam, 2004; Postmes & Branscombe, 2010) in more detail; it consists of the Self-categorisation Theory (SCT: Turner, Hogg, Oakes, Reicher & Wetherell, 1987; Turner, Oakes, Haslam, & McGarty, 1994) and the Social Identity Theory (SIT: Tajfel & Turner, 1979). I examined how the SIT can be applied to paranoia. In Chapter 5, I found that in a general population sample, having strong neighbourhood identity protected non-clinical individuals from paranoia associated with financial stress, and that this relationship was mediated by self-esteem. Additionally, it was found that among university students who had moved

away from home, identifying with their current neighbourhood was protective against paranoia but identifying with their hometown was not.

In Chapter 6, I discussed the elevated rates of psychosis in ethnic minority populations, particularly in individuals of African-Caribbean heritage, and suggested that lacking strong and meaningful social identities may increase the risk of paranoia in this vulnerable minority group. Further, it was proposed that social experiences may affect the extent to which identities are protective against paranoia. Specifically, it was posited that social identities linked to the majority culture may be most protective when combined with positive social interactions with people from the majority culture. In Chapter 7, the ideas presented in Chapter 6 were tested. Contrary to predictions, self-esteem did not mediate the relationship between negative contact with the White majority and paranoia in a sample of African-Caribbean participants. However, powerful others LoC was found to mediate the positive relationship between negative contact and paranoia when participants exhibited high British identification. Thus, a type of social identity (in this case, ethnic identity) acted as a moderator of the relationship between negative contact with White British people and paranoia when levels of British identification were high, but not when levels of British identification were low.

Perceived discrimination was explored in Chapter 8 as another social stressor that was hypothesised to predict increased levels of paranoia in ethnic minority groups. I extended on the work described in Chapter 8 by examining the potential role of implicit and explicit ethnic identities, as well as participants' current and heritage ethnic identities. In Chapter 9, a sample of students of Pakistani heritage who were born in England and reside in a town which is high in ethnic density were recruited. The relationship between perceived discrimination and paranoia was examined. Again, the ethnic identity measures were assessed as moderators of this relationship; participants' English and Pakistani ethnic identities were assessed both explicitly and implicitly. The study found that high levels of perceived discrimination were associated with high levels of paranoia, but only when individuals exhibited low levels of implicit Pakistani identification or high levels of both implicit Pakistani and implicit English identification. When implicit Pakistani identification was high but implicit English identification was low, there was no relationship between perceived discrimination and paranoia. High explicit Pakistani identity and low implicit

Pakistani identity were independently associated with lower levels of paranoia but neither implicit nor explicit English identities were. It was concluded that implicit ethnic identities buffer against paranoia when individuals perceive they are being discriminated against. Overall, an essential overarching finding across the studies was the consistency of the bivariate relationship between high identity and low levels of paranoia.

10.3 Integrative Summary

Research has previously suggested that psychosis is common in the general population and lies on a continuum with healthy functioning (van Os, Hanssen, Bijl & Ravelli, 2000; Lawrie, Hall, McIntosh, Owens, & Johnstone, 2010). However, research into the characteristics of specific symptoms of psychosis is sparse and methodologically limited. There have been two studies that supported the notion that paranoia is distributed on a continuum; such that everyone in the population exhibits paranoia to some extent (Freeman et al, 2005; Bebbington et al., 2013). However, a limitation of these studies is that the methods utilised were not specifically designed to test for discontinuities in a dataset assessing a spectrum of psychopathology. The study in Chapter 3, which analysed a large pool of data using such methods supported the notion that paranoia exists on a continuum. This finding also supports more general mental health models, which suggest a positive psychosis symptom continuum (e.g. Claridge, 1987), and research that finds evidence for continua across most areas of psychopathology (Haslam, Holland & Kuppens, 2012). It can also be suggested that research on paranoia in general population samples may be utilised to help develop preventative strategies and interventions for clinical levels of paranoia.

As discussed in Chapter 4, the SIT has long been used to describe behaviour between ingroups and outgroups and to explain why people favor their ingroup over other groups (Tajfel, 1970; Tajfel, Billig, Bundy & Flament, 1971; Cialdini, Borden, Thorne, Walker, Freeman, & Sloan, 1976; Rubin, Paolini & Crisp, 2010). McIntyre, Elahi and Bentall (2016) furthered this approach by applying the theory to explain elevated rates of psychosis, including paranoia, in immigrants and ethnic minority groups. Chapters 5, 7 and 9 assessed this model of social identity as a buffer against paranoia. The three empirical studies supported McIntyre et al., (2016) insofar as links were found between paranoia and social group identity across various samples, including the general population, university students, individuals of African-

Caribbean heritage living in Britain, and college students of Pakistani heritage born in England.

The application of the SIT to health behaviours and health outcomes has been named the 'The Social Cure' (S. Haslam, Jetten, Postmes & C. Haslam, 2009; Jetten, Haslam, & Alexander, 2012). This account suggests that, when people belong to positive and meaningful groups, their health improves because groups are a source of self-esteem, sense of meaning, belonging, personal control, and provide a sense of purpose (Cruwys, S. Haslam, Dingle, C. Haslam, & Jetten, 2014; Greenaway, Haslam, Branscombe, Cruwys, Ysseldyk, & Heldreth., 2015). Supporting this account, in my thesis it was found that strong identification furnished individuals with self-esteem (Chapters 5) and personal control (Chapter 7). These mechanisms were found to mediate the relationships between social stressors and paranoia when identities were entered as moderators, and so are associated with stressor-identity-paranoia relationships.

The findings from the two studies in Chapter 5, therefore, support previous research that has suggested that social identification increases self-esteem and improves mental health (Haslam et al., 2009; C. Haslam, Cruwys, S. Haslam, Dingle, & Chang, 2016). The findings also supported the notion that poor mental health is closely linked to low self-esteem and that low self-esteem is associated with paranoia in general population and student samples (Fowler et al., 2011; Thewissen Bentall, Lecomte, van Os, & Myin-Germeys, 2008; Wickham, Sitko & Bentall, 2015). However, this importance of self-esteem may not always be evident in relationships between social stressors and paranoia, which are moderated by identity, as illustrated in the African-Caribbean sample assessed in Chapter 7.

The absence of a mediating role of self-esteem could be explained by the inclusion of powerful others LoC in the model. Rohner (1980) noted that group acceptance was particularly important in children's development of LoC and race-based rejection has been found to be associated with the powerful others LoC subscale among Black American women (Pieterse & Carter, 2010). Therefore, in this minority group that often experiences negative contact with the majority White British population, it is unsurprising that powerful others LoC was a more important mediator than self-esteem. It is also important to note that it needs to be investigated whether powerful others LoC plays a similar role in White general population samples in stressor-paranoia relationships that are moderated by social identification.

It can be suggested that, whilst the role of self-esteem in the experience of paranoia is important, it is not necessarily the most prominent mediator of stressor-paranoia relationships in ethnic minority groups. It is also important to note that different stressors and different types of identities were being assessed; financial stress and neighbourhood identity in Chapter 5 and negative contact with the White majority population and British identity in Chapter 7. Such factors may also explain the difference between the two chapters in the role of self-esteem. Overall, it appears that low levels of negative contact with the majority outgroup can act as a source of greater control when people from minority groups, who are discriminated against and feel powerless (Mirowsky & Ross, 1983), experience high levels of identification and this is more important for their mental health than high levels of self-esteem.

Chapter 5 also highlighted the importance of identifying with one's current place of residence as the protection that neighbourhood identity provided against paranoia was not found to extend to students once they'd moved away from that previously important neighbourhood. This finding is in-line with research that suggests that it is vital to identify with the local people and culture of the place where you reside (Thomas, Bentall, Hadden & O'Hara, 2017). It also potentially helps to explain why in areas of high ethnic density, identifying with an individual's heritage culture and people who are of the same culture is crucial, as evident in Chapter 9. This finding is consistent with the finding by Halpern and Nazroo (2000) that in areas with lower numbers of ethnic minority individuals, people are more likely to present with elevated rates of psychosis (Boydell et al., 2001; Veling, Susser, Van Os, Mackenbach, Selten, & Hoek, 2008; Schofield, Ashworth & Jones, 2011) as they may fail to identify with the people and culture of the place where they live. However, in Chapter 9, it was also revealed that a combination of low implicit Pakistani identity and low implicit English identity was also protective against paranoia associated with perceived discrimination. As detailed in the discussion section in Chapter 9, this may be due to the blurred lines between the identities of individuals who identify with more than one ethnic group as it becomes difficult to identify which group is the ingroup and which is the outgroup.

Chapter 9 also highlighted the vital difference between explicit and implicit ethnic identities insofar as explicit Pakistani identification did not moderate the relationship between perceived discrimination and paranoia, but implicit Pakistani identification did. It was found that high levels of implicit Pakistani identification

protected against paranoia associated with perceived discrimination. These differences between the types of ethnic identities were highlighted by Thomas and colleagues (2017). Thomas et al. found that implicit American identification was associated with higher levels of paranoia, and implicit Emirati identification was associated with lower levels of paranoia in female university students in the United Arab Emirates (UAE). Although implicit identity was not measured in the other chapters of my thesis, it appears that directly asking people about their ethnic identity is not the only way to measure identities. As Chapter 9 illustrated, divergent effects of explicit vs implicit measures were evident, it may be that explicit measures do not provide the most accurate results as people may answer according to what they believe they should say rather than how they actually feel. However, it is equally plausible that they are different constructs and, therefore, the interrater reliability between explicit and implicit measures needs to be established before they are utilised. This means that as well as assessing different ethnicities in people who identify as being of dual ethnicity/nationality, it may also be important to assess ethnic identification using multiple measures which are internally consistent.

Overall, my thesis highlights the importance of social group belonging in explaining symptoms of paranoia and buffering against the effects of social stressors (financial stress, negative contact and perceived discrimination) on mental health. Support was found for the Social Cure Model (Haslam et al., 2009; Jetten et al., 2012) as it was found that when people strongly identify with social groups that are a source of hostility and unpleasantness, the effects on individuals' mental health can be detrimental, as found in Chapter 7. Even though the theory can be applied to different minority populations, the psychological mechanisms which mediate stressor-paranoia relationships are varied. For example, in Chapter 5, where the majority of the sample was White British, self-esteem mediated the relationship between financial stress and paranoia, supporting previous research that highlights the importance of self-esteem in the development of paranoia (Thewissen et al., 2008; McIntyre, Wickham, Barr & Bentall, 2017; Bentall et al., 2008). However, in the African-Caribbean population, in Chapter 7, powerful others LoC, but not self-esteem, mediated the relationship between negative contact and paranoia, suggesting that for members of ethnic minority groups to exhibit low levels of paranoia, feeling in control is more important than high levels of self-esteem. This suggests that LoC may play an important role in the development of paranoid thoughts, as it does in the development of depression

(Greenaway Haslam, Cruwys, Branscombe, Ysseldyk & Heldreth, 2015). Finally, Chapters 7 and 9 also illustrated that for individuals from ethnic minority backgrounds to experience low levels of paranoia, it is important for them to have positive relationships with people who also belong to the group that they identify with (Tajfel & Turner, 1979).

10.4 Limitations

There are several limitations of the studies within my thesis that are discussed in the discussion sections of each chapter. However, some of the over-arching limitations will be discussed here. Firstly, all four of my studies adopted a cross-sectional design, thereby only providing a snapshot of the relationship between different social stressors, identities and paranoia as well as the structure of paranoia. If a longitudinal design was implemented in future studies, a better understanding of the causal importance of identities in protecting individuals from high levels of paranoia and a better understanding of the evolution of paranoia over time would be evident. Additionally, Maxwell and Cole (2007) suggest further limitations when utilising cross-sectional data specifically in mediation analyses. They highlight that mediation analyses consist of causal processes that occur over time (Cole & Maxwell, 2003). Therefore, when using cross-sectional data, the analyses generate biased estimates of longitudinal effects, both when mediation is complete and more typically, when analyses yield partial mediation (Maxwell, Cole & Mitchell, 2011). Due to such limitations, the use of longitudinal data in mediation analyses would have enabled me to more accurately infer the causal relationships implied in my empirical studies.

Also, qualitative data was not collected in my studies. In the questionnaires used, participants needed to ensure their answers fit into one of the options they were given. However, interviewing participants would have allowed them to express their views in more detail and provide a deeper insight into the relationships between social stressors, identity and paranoia. Additionally, experimental designs were not implemented. For example, it would be possible to manipulate identity by writing about an important identity (versus writing about something irrelevant to identities) and then assess the effect this has on participants' self-esteem, powerful others LoC and paranoia using validated measures.

The inferences I have made in my studies about causality, and the hypotheses tests I constructed, were made on the basis of previous research and theorising.

However, the relationships between the variables could potentially have been analysed in different ways. For example, the identity measures may have been entered into the analyses as independent variables rather than moderators. This would mean that the relationship between neighbourhood/ethnic identity and paranoia would be assessed and the negative stressors (financial stress, negative contact and perceived discrimination) would be examined as potential moderators of these relationships. This would still provide an interesting assessment of the stressor-identity-paranoia relationship. However, the models assessed in my thesis have analysed identities as moderators due to the theoretical underpinning that identities provide protective value and buffer against poor mental health outcomes (Mossakowski, 2003; Yoo & Lee, 2008; McIntyre et al., 2016).

The studies in Chapters 3 and 5 use pre-existing data, which were originally collected to assess different research questions, thus the explicit measures of identity were different in Chapter 5 compared to the identity measures in Chapters 7 and 9. The study in Chapter 5 used a single identity item, whereas the other two studies used the Four-Item measure of Social Identification (FISI; Postmes, Haslam & Jans, 2013). Although the single-item measure has been validated against longer scales, using the same measures of identity across all studies would provide more comparable results. In addition to this, all measures, apart from the implicit identity measure, were self-reported. Therefore, participants' levels of paranoia and identification (e.g. ethnic group) were not independently verified. It is also important to note that, the samples utilised in the studies in Chapters 3, 5 and 9 consisted of a large number of students, who usually present particularly high rates of mental health symptoms (see Storrie, Ahern & Tuckett, 2010), so the results may be non-representative of the general population. Against these criticisms, it could be argued that the diversity of measures and populations, in which comparable results were found, is a strength of my overall approach and speaks to the generalisability of the findings.

Another potential limitation is the focus on a single symptom as individuals often experience comorbid symptoms and the effects of identity, financial stress, negative contact and perceived discrimination are unlikely to be specific to paranoia. Therefore, the paranoia people experience may be somewhat impacted by the other symptoms they present. For example, the SIT has already been applied to symptoms of anxiety and depression (Cruwys et al., 2014; Cruwys, Dingle, C. Haslam, S. Haslam, Jetten, & Morton, 2013; Cruwys, South, Greenaway, & Haslam, 2015) which

may actually co-exist with symptoms of paranoia. This is particularly true of the patients and at-risk mental state (ARMS) group in Chapter 3. The studies in my thesis also failed to differentiate between the two subtypes of paranoia identified by Trower and Chadwick (1995); 'poor me' paranoia (in which persecution is believed to be underserved) and 'bad me' paranoia (in which persecution is believed to be deserved). It may be that these types of paranoia are differentially associated with the phenomenon tested in these studies. For example, there may be a difference in how the 'poor me' and 'bad me' paranoia variants are associated with social identities. Finally, an important limitation of the study presented in Chapter 3 is that the presentation of psychotic symptoms may impact the way that individuals answered self-report questions. However, the other three studies in my thesis used non-clinical samples and this is an issue which is present in any psychological study of psychosis in a patient sample and there is no evidence that it compromised the results in Chapter 3.

10.5 Clinical Implications

The studies within my thesis have many important clinical implications. The findings highlight the importance of mental health staff having an understanding of the environment and culture that service users belong to and identify with. It appears that staff should try to encourage individuals who present with poor mental health symptoms to develop and maintain strong identification with their local neighbourhood and ethnic groups and develop positive social relationships with others. In terms of ethnic group identification, it appears that different identities may confer risk or protection under different circumstances. Therefore, it is important for mental health staff to consider the potential barriers that individuals may face, such as, negative contact and perceived discrimination as these barriers would affect how strongly individuals identify with certain groups and in turn influence their mental health. It would also be beneficial for mental health practitioners to have some understanding of the ethnic density of an individual's place of residence. This may be of particular importance for individuals of an ethnic minority background as they present with higher rates of mental health symptoms when living in areas that are low in ethnic density (Halpern & Nazroo, 2000; Boydell et al., 2001).

My findings also demonstrated that strong social ties can be beneficial for health and well-being as suggested by the Social Cure Model (Haslam et al., 2009; Jetten et al., 2012). This further highlights the importance of psychiatric staff having an understanding of the social groups that individuals belong to as they may be able to help improve their general health and well-being as well as their mental health symptoms. If an individual does not identify with any social groups, it may be helpful for health practitioners to encourage participation in group activities and positive contact with others as this may help to minimise the development of psychotic symptoms and help them to develop a sense of belonging and self-worth. An example of a psychological intervention that was designed to target the maintenance of social group activity is Groups 4 Health (G4H). It was found that strong social group relationships significantly improved mental health and general well-being (C. Haslam, Cruwys, S. Haslam, Dingle & Chang, 2016).

Despite an assessment of the groups that individuals identify with being important, it can be suggested that explicit measures may be more useful in clinical settings in comparison to implicit measures. This is largely due to issues with the reliability of such measures. Even though research has supported the reliability of some implicit psychological measures (Nosek, Greenwald & Banaji, 2005; Payne & Lundberg, 2014), these measures have not specifically measured identity. Therefore, it appears that more evidence is required to support the internal consistency and reliability of implicit measures, when assessing the strength of individuals' identification with various groups, before such measures can be implemented in clinical practice.

Due to the finding that social identities appear to be important for all groups regardless of their ethnic background, it may be suggested that the assessment of the number of social groups people belong to and the quality of social group identification should be routine within all psychiatric services. Despite the development of the 'CHIME'[4] model (Leamy, Bird, Le Boutillier, Williams & Slade, 2011), which stresses the importance of social identities for people in recovery, the model is not widely implemented. The model also highlights the importance of redefining

[4] CHIME is a conceptual framework for personal mental health recovery. It's recovery processes compromise of the following: **C**onnectedness; **H**ope and optimism about the future; **I**dentity; **M**eaning in life; and **E**mpowerment.

identities, developing meaningful roles and goals, and empowerment as key aspects of recovery. Despite this, in terms of the determinants of mental health, Bentall (2009) highlights that psychiatric services place more emphasis on biological factors despite large amounts of research highlighting the importance of social factors, such as social identification, in mental health issues.

By examining specific types of group belonging in individuals who present to services, as well as their ethnic identity and the specific symptoms they suffer from, clinicians' may gain an understanding of the psychological mechanisms that are implicated when certain symptoms are present. For example, in the studies conducted in my thesis, self-esteem was an important psychological mediator in the relationship between negative contact and paranoia, which was moderated by levels of neighbourhood identity, in a sample that was predominantly White British. However, in the African-Caribbean sample, it appeared that powerful others LoC was more important as a psychological mediator in the relationship between perceived discrimination and paranoia, moderated by levels of British identity. Thus, it seems that the types of stressors individuals are facing and their levels of social identification with various groups can help to inform the psychological mediators they need to improve (for example, gaining more confidence or feeling more in control of their life) and in turn this will improve their levels of paranoia.

In 2014, Cognitive Behavioural Therapy (CBT) was recommended by The National Institute for Health and Care Excellence (NICE) guidelines as the evidence-based therapy to be administered for individuals with psychosis. Taking the findings of my thesis into consideration, it may be possible to vary the focus of CBT sessions depending on the background of the individuals in the session. For example, CBT interventions may focus on finding out whether participants feel accepted in their community and whether they experience discrimination. It may also be important for CBT to be culturally adapted for ethnic minority individuals. Promising results have been found when CBT has been culturally adapted for psychosis (Rathod et al., 2013) and for post-natal depression (Khan et al., 2019). A recent meta-analysis found that culturally adapted interventions were more efficacious than usual treatment in proportion to the degree of adaptation (Degnan et al., 2018).

It may also be important for therapists to be mindful of therapies and interventions that address the need to increase participation in social groups. For example, administering group psychological therapies may help people feel a sense of

belonging to the group and subsequently strengthen their involvement in the therapy. Depression support groups exist, and similar groups may be tailored for people experiencing symptoms of paranoia. In this context, the group intervention (G4H) developed by the Haslams and their colleagues, which is specifically designed to enhance the skills required to form social identities, may have utility in the treatment of paranoia (Haslam et al., 2016). However, it must be noted that individuals with symptoms of paranoia may reinforce each other's paranoia so the suitability of this type of group therapy would have to be assessed on a case by case basis. It has also been suggested that when staff working in mental health services build trust and positive relationships with individuals who present to them, improved therapy outcomes are apparent (Taylor et al., 2014) and this may be due to the individual identifying with the staff member. Thus, clinical staff may also focus more on building trust and rapport with the individuals who access their services.

10.6 Policy Implications

The findings of my thesis suggest that experiencing a lack of belonging in social groups can contribute to an increase in paranoia, a decrease in self-esteem and a likely cycling of these effects as paranoia is, by definition, detrimental to group belonging. The NICE guidelines (2014) highlight the importance of family interventions for individuals suffering from psychosis, but do not specify exactly how the family interventions should be administered. One option may be to encourage people to participate in social group activities as a family. Specifically, individuals with psychosis may lack the self-esteem to participate in group activities where they are not familiar with the other participants. Structured group activities within families may therefore be beneficial to reduce symptoms of psychosis, such as paranoia.

Due to social identities being formed in social environments, it appears apt to suggest that the most effective policies aimed at increasing social identification should be administered at community level. The finding that the quality of contact with the majority population is associated with paranoia could lead to effective novel community interventions. These interventions should be aimed at improving minority-majority relationships. Guided by the present findings, intergroup work and social activities should be encouraged, particularly in low ethnic density neighbourhoods where minority groups live in relative isolation from other people who share their ethnic background. This may be particularly important as it has been suggested that

living in such areas can have negative effects on the mental health of individuals' from ethnic minority groups (Boydell et al., 2001; Halpern & Nazroo, 2000). For example, a program may be designed to specifically increase diversity in sports clubs. A stereotypical link between Pakistani and English culture is a fondness of cricket. Therefore, to strengthen Pakistani-English relations, increasing diversity within cricket clubs by providing incentives for Pakistani people to join them (e.g. through discounted memberships) would potentially increase the quality of contact between these majority and minority groups.

Interventions in the community may also be aimed at enhancing psychological resilience in individuals. This may be achieved by fostering strong ties between individuals and their neighbourhoods; the importance of this can be seen in Chapter 5 which illustrates that identifying with one's current place of residence is critical to improving levels of paranoia. Community level interventions may also be educational in their nature. For example, it may be beneficial to help minority groups identify with their country of residence. This may be achieved by highlighting similarities with the country of their heritage ethnic group and the country that they currently reside in or, as aforementioned, culturally adapting psychological interventions. It would be fruitful to run interview or focus groups with people of ethnic minority groups to determine how best to culturally adapt therapies which target paranoia. This would be beneficial for ethnic minority groups as, by definition, culturally adapted interventions have the positive consequence of focusing on 'identity'.

Moreover, the Social Identity Model of Identity Change (SIMIC; Jetten & Pachana, 2012) suggests that positive social relationships can limit the negative impact of life transitions on health and well-being (Haslam et al., 2009). In accordance with this model and the findings in Chapter 5, it can be seen that forming new social relationships after transitions, such as, moving to university, can protect individuals from the negative effects that are associated with the loss of identities (Jetten et al., 2012). Therefore, interventions may be administered in universities for students who have recently moved to a new city or a new country for their studies. The interventions should involve helping students form social identities in their new environment, for example, encouraging students to join and attend university societies by providing incentives, such as day trips, for attendance. It has also been found that small group identities are particularly important (McIntyre, Worsley, Corcoran, Harrison, Woods

& Bentall, 2018), so implementing smaller tutorial groups (e.g. 10-12 students) would be another way to encourage interaction and a feeling of belongingness amongst students.

10.7 Potential Avenues for Future Research

As guided by the limitations above, there are several avenues that future research could explore. Firstly, conducting studies which assess the stressor-identity-paranoia relationship longitudinally may prove to be beneficial, particularly to establish causal pathways and provide an understanding of this relationship over time. This would be interesting, as it would also test the SIMIC model mentioned above by assessing the effects on mental health when individuals lose their identities as well as gain new ones. Additionally, despite obvious difficulties and ethical issues in manipulating mental health symptoms, it would be useful to manipulate the saliency of different types of identities e.g. putting individuals in arbitrary groups and examining how these influence proxies of mental health, such as social trust. By adopting this type of experimental design, findings may be more applicable to real world settings and provide stronger evidence for causality.

Additionally, more extensive research needs to be conducted to determine the psychological mechanisms involved in stressor-paranoia relationships that are moderated by social identification. Previous research has found that low self-esteem precedes an increase in paranoia (Thewissen et al., 2008; Thewissen et al., 2011). The relationship between paranoia and self-esteem was supported in Chapter 5 but not in Chapter 7, where powerful others LoC was found to be more important. Thus, it appears that the psychological mediator involved in stressor-identity-paranoia relationships may depend on the type of identity and sample being assessed. Therefore, more research needs to be conducted to assess the importance of various psychological mechanisms in different populations. To address another key limitation of the current studies, future research should consider the relationship between social identity and the 'poor me' and 'bad me' subtypes of paranoia (Trower & Chadwick, 1995). I would hypothesise that strong social identification would be particularly beneficial for individuals experiencing poor me paranoia as they would be more likely to have the motivation to develop stronger social ties than someone who inherently believes that they are to blame for their feelings of persecution.

The assessment of both explicit and implicit identities in my thesis was informative as the results indicated divergent effects. Specifically, in Chapter 9 it was found that the measures of explicit and implicit identities examined two separate constructs. In future research, it would be beneficial to further assess the role of explicit and implicit ethnic identities amongst individuals who identify with more than one ethnic group. However, as in the study by Thomas and colleagues (2017), this future research should focus on participants who are born and raised in the country where they form the majority population but have an influence from another ethnic group. For example, attending a college or university whose curriculum and values run counter to the prevailing values espoused by the indigenous population.

It may also be useful for studies assessing social stressors, social identities and paranoia to be conducted with other measures of paranoia, such as 'The Positive and Negative Syndrome Scale' (PANSS) by Kay, Fiszbein and Opler (1987), to assess individuals who have a clinical diagnosis and incorporate both psychological and neuropsychological functioning, which have already been hypothesised to feature in paranoid ideation. These include theory of mind (TOM, Corcoran, Mercer & Frith, 1995), jumping to conclusion bias (Garety, 1991; Garety & Hemsley, 1994), attributional bias (Bentall, Kaney & Dewey, 1991; Bentall, Kinderman & Kaney, 1994; Kinderman & Bentall, 1996) and attachment styles (Berry, Wearden, Barrowclough, & Liversidge., 2006; MacBeth, Schwannauer & Gumley, 2008; Sitko, Bentall, Shevlin & Sellwood, 2014). In line with my studies, these factors could be assessed as potential mediators between various social stressors and paranoia when social identities are simultaneously assessed as moderators. It can be hypothesised that an under-developed ToM, a strong jumping to conclusions bias, an external attributional bias and insecure attachment styles would be associated with weaker social identification and higher levels of paranoia.

As mentioned in Chapters 1, 5 and 9, the acculturation model (Berry & Kim, 1988) suggested that the best strategy for maintaining positive mental health when transitioning between cultures is *integration* (Berry, Kim, Minde, & Mok, 1987; Berry, 1999). This refers to retaining identification with one's old culture whilst also identifying with their new culture. Although, Berry and Kim's theory was developed for those who had moved to a new country, my studies did not entirely support the application of this model. In Chapter 5, the strategy *assimilation* was supported as

providing the best mental health outcomes. The *assimilation* strategy refers to an individual embracing a new culture whilst disidentifying with their original culture. Therefore, identity issues could influence the acculturation strategy employed which in turn could impact an individuals' mental health. More research needs to be conducted to test which strategy from the acculturation model is best applicable to both minority and majority groups enduring life transitions.

Another important avenue for future research is to assess the latent structure of other symptoms. For example, using taxometric methods (Meehl, 1995), it would be interesting to examine the latent structure of hallucinations. Previous literature has suggested that, like paranoia, hallucinations may also have a dimensional latent structure (Johns et al., 2014; Baumeister, Sedgwick, Howes, O & Peters, 2017). Should hallucinations exist on a continuum, these findings would have important implications as it would mean that hallucinations, like paranoia, could be studied in general population samples to inform interventions for clinical presentations of the symptom.

Finally, it is important to explore the effect that social identification has on biological X environmental interactions in their effect on paranoia. Research has shown that there are elevated rates of dopamine in individuals who experience delusions (Breier et al., 1997; Abi-Dargham et al., 1998; Abi-Dargham, 2004). Therefore, it would be interesting to examine dopamine levels in people before and after joining and participating in social group activities. It would also be informative to examine how specific types of social identities interact with dopamine levels in their effect on psychotic symptoms. Taking biological factors, such as neurotransmitters into account, alongside social identity factors, and assessing their relative importance, may lead to a better understanding of the interplay between social and biological factors in predicting paranoia, and in which domains interventions should be targeted.

10.8 Concluding remarks

In conclusion, my findings illustrate that paranoia exists on a continuum across general population and clinical samples. Thus, investigating levels of paranoia in general population samples may prove to be fruitful when developing psychological therapies or interventions aimed at reducing clinical levels of paranoia. It appears that identifying with some groups can buffer against symptoms of paranoia that are

associated with a range of stressors, including financial stress, negative contact and perceived discrimination. Overall, depending on the circumstances, social identities may be protective against increased levels of paranoia.

In ethnic minority samples, my results reinforce the notion that people living in isolation from other members of their ethnic group are likely to experience elevated rates of mental health issues and this may be due to negative experiences when encountering people from the majority group with whom they identify. Regardless of ethnic differences, the results in my thesis suggest that people may experience better or worse mental health when they identify with different ethnic groups and that this outcome depends on the amount of negative contact and perceived discrimination they experience. This research may lead to social interventions that aim to reduce high rates of psychosis by encouraging individuals to join and participate in groups that are not a source of negative contact and perceived discrimination.

10.9 References

Abi-Dargham, A. (2004). Do we still believe in the dopamine hypothesis? New data bring new evidence.

Abi-Dargham, A., Gil, R., Krystal, J., Baldwin, R. M., Seibyl, J. P., Bowers, M., ... & Laruelle, M. (1998). Increased striatal dopamine transmission in schizophrenia: confirmation in a second cohort. *American Journal of Psychiatry*, *155*(6), 761-767.

Baumeister, D., Sedgwick, O., Howes, O., & Peters, E. (2017). Auditory verbal hallucinations and continuum models of psychosis: a systematic review of the healthy voice-hearer literature. *Clinical psychology review*, *51*, 125-141.

Bebbington, P. E., McBride, O., Steel, C., Kuipers, E., Radovanoviĉ, M., Brugha, T., ... & Freeman, D. (2013). The structure of paranoia in the general population. *The British Journal of Psychiatry*, *202*(6), 419-427.

Bentall, R. P. (2009). *Doctoring the mind: Why psychiatric treatments fail*. Penguin UK.

Bentall, R. P., Kaney, S., & Dewey, M. E. (1991). Paranoia and social reasoning: an attribution theory analysis. *British Journal of Clinical Psychology*, *30*(1), 13-23.

Bentall, R. P., Kinderman, P., & Kaney, S. (1994). The self, attributional processes and abnormal beliefs: towards a model of persecutory delusions. *Behaviour research and therapy*, *32*(3), 331-341.

Bentall, R. P., Rouse, G., Kinderman, P., Blackwood, N., Howard, R., Moore, R., ... & Corcoran, R. (2008). Delusions of paranoia in schizophrenia spectrum disorders and depression: the transdiagnostic role of expectations of negative events and negative self-esteem. *The Journal of nervous and mental disease*, *196*(5), 375-383.

Berry, J. W. (1999). Intercultural relations in plural societies. *Canadian Psychology/Psychologie Canadienne*, *40*(1), 12.

Berry, J. W., & Kim, U. (1988). Acculturation and mental health. In P. Dasen, J. Berry & N. Sartorius (Eds.), *Health and Cross-Cultural Psychology: Towards Application* (Vol. 12, pp. 207-236). London: Sage.

Berry, J. W., Kim, U., Minde, T., & Mok, D. (1987). Comparative studies of acculturative stress. *International migration review*, 491-511.

Berry, K., Wearden, A., Barrowclough, C., & Liversidge, T. (2006). Attachment styles, interpersonal relationships and psychotic phenomena in a non-clinical student sample. *Personality and Individual Differences*, *41*(4), 707-718.

Boydell, J., Van Os, J., McKenzie, K., Allardyce, J., Goel, R., McCreadie, R. G., & Murray, R. M. (2001). Incidence of schizophrenia in ethnic minorities in London: ecological study into interactions with environment. *Bmj*, *323*(7325), 1336.

Breier, A., Su, T. P., Saunders, R., Carson, R. E., Kolachana, B. S., De Bartolomeis, A., ... & Pickar, D. (1997). Schizophrenia is associated with elevated amphetamine-induced synaptic dopamine concentrations: evidence from a novel positron emission tomography method. *Proceedings of the National Academy of Sciences*, *94*(6), 2569-2574.

Cialdini, R. B., Borden, R. J., Thorne, A., Walker, M. R., Freeman, S., & Sloan, L. R. (1976). Basking in reflected glory: Three (football) field studies. *Journal of personality and social psychology*, *34*(3), 366.

Claridge, G. (1987). 'The schizophrenias as nervous types' revisited. *The British Journal of Psychiatry*, *151*(6), 735-743.

Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: questions and tips in the use of structural equation modeling. *Journal of abnormal psychology*, *112*(4), 558.

Corcoran, R., Mercer, G., & Frith, C. D. (1995). Schizophrenia, symptomatology and social inference: investigating “theory of mind” in people with schizophrenia. *Schizophrenia research*, *17*(1), 5-13.

Cruwys, T., Dingle, G. A., Haslam, C., Haslam, S. A., Jetten, J., & Morton, T. A. (2013). Social group memberships protect against future depression, alleviate

depression symptoms and prevent depression relapse. *Social Science & Medicine*, *98*, 179-186.

Cruwys, T., Haslam, S. A., Dingle, G. A., Haslam, C., & Jetten, J. (2014). Depression and social identity: An integrative review. *Personality and Social Psychology Review*, *18*(3), 215-238.

Cruwys, T., South, E. I., Greenaway, K. H., & Haslam, S. A. (2015). Social identity reduces depression by fostering positive attributions. *Social Psychological and Personality Science*, *6*(1), 65-74.

Degnan, A., Baker, S., Edge, D., Nottidge, W., Noke, M., Press, C. J., ... & Drake, R. J. (2018). The nature and efficacy of culturally-adapted psychosocial interventions for schizophrenia: a systematic review and meta-analysis. *Psychological medicine*, *48*(5), 714-727.

Fowler, D., Hodgekins, J., Garety, P., Freeman, D., Kuipers, E., Dunn, G., ... & Bebbington, P. E. (2011). Negative cognition, depressed mood, and paranoia: a longitudinal pathway analysis using structural equation modeling. *Schizophrenia bulletin*, *38*(5), 1063-1073.

Freeman, D., Garety, P. A., Bebbington, P. E., Smith, B., Rollinson, R., Fowler, D., ... & Dunn, G. (2005). Psychological investigation of the structure of paranoia in a non-clinical population. *The British Journal of Psychiatry*, *186*(5), 427-435.

Garety, P. (1991). Reasoning and delusions. *The British Journal of Psychiatry, 159* (Suppl 14), 14-18.

Garety, P. A. & Hemsley, D. R. (1994). Delusions: Investigations into the Psychology of Delusional Reasoning. Oxford University Press: Oxford.

Greenaway, K., Haslam, S.A., Branscombe, N.R., Cruwys, T., Ysseldyk, R., & Heldreth, C. (2015). From "we" to "me": Group identification enhances perceived personal control with consequences for health and well-being. Journal of Personality and Social Psychology, 109(1), 53–74.

Halpern, D., & Nazroo, J. (2000). The ethnic density effect: results from a national community survey of England and Wales. *International Journal of Social Psychiatry*, *46*(1), 34-46.

Haslam, S. A. (2004). *Psychology in organizations*. Sage.

Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G., & Chang, M. X. L. (2016). Groups 4 Health: Evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of affective disorders*, *194*, 188-195.

Haslam, N., Holland, E., & Kuppens, P. (2012). Categories versus dimensions in personality and psychopathology: a quantitative review of taxometric research. Psychological medicine, 42(5), 903-920.

Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: an emerging agenda for applied psychology. *Applied Psychology*, *58*(1), 1-23.

Jetten, J., & Pachana, N. (2012). Not wanting to grow old: A Social Identity Model of Identity Change (SIMIC) analysis of driving cessation among older adults.

Jetten, J., Haslam, C., & Alexander, S. H. (Eds.). (2012). *The social cure: Identity, health and well-being*. Psychology Press.

Johns, L. C., Kompus, K., Connell, M., Humpston, C., Lincoln, T. M., Longden, E., ...& Fernyhough, C. (2014). Auditory verbal hallucinations in persons with and without a need for care. *Schizophrenia bulletin*, *40*(Suppl_4), S255-S264.

Kay, S. R., Fiszbein, A., & Opler, L. A. (1987). The positive and negative syndrome scale (PANSS) for schizophrenia. *Schizophrenia bulletin*, *13*(2), 261-276.

Khan, S., Lovell, K., Lunat, F., Masood, Y., Shah, S., Tomenson, B., & Husain, N. (2019). Culturally-adapted cognitive behavioural therapy based intervention for maternal depression: a mixed-methods feasibility study. *BMC women's health*, *19*(1), 21.

Kinderman, P., & Bentall, R. P. (1996). Self-discrepancies and persecutory delusions: evidence for a model of paranoid ideation. *Journal of abnormal psychology*, *105*(1), 106.

Lawrie, S. M., Hall, J., McIntosh, A. M., Owens, D. G., & Johnstone, E. C. (2010). The 'continuum of psychosis': scientifically unproven and clinically impractical. 197, 423-425.

Leamy, M., Bird, V., Le Boutillier, C., Williams, J., & Slade, M. (2011). Conceptual framework for personal recovery in mental health: systematic review and narrative synthesis. *The British Journal of Psychiatry*, *199*(6), 445-452.

MacBeth, A., Schwannauer, M., & Gumley, A. (2008). The association between attachment style, social mentalities, and paranoid ideation: An analogue study. *Psychology and Psychotherapy: Theory, Research and Practice*, *81*(1), 79-93.

Maxwell, S. E., & Cole, D. A. (2007). Bias in cross-sectional analyses of longitudinal mediation. *Psychological methods*, *12*(1), 23.

Maxwell, S. E., Cole, D. A., & Mitchell, M. A. (2011). Bias in cross-sectional analyses of longitudinal mediation: Partial and complete mediation under an autoregressive model. *Multivariate Behavioral Research*, *46*(5), 816-841.

McIntyre, J. C., Elahi, A., & Bentall, R. P. (2016). Social identity and psychosis: Explaining elevated rates of psychosis in migrant populations. *Social and Personality Psychology Compass*, *10*(11), 619-633.

McIntyre, J. C., Wickham, S., Barr, B., & Bentall, R. P. (2017). Social identity and psychosis: Associations and psychological mechanisms. *Schizophrenia Bulletin*, *44*(3), 681-690.

McIntyre, J. C., Worsley, J., Corcoran, R., Harrison Woods, P., & Bentall, R. P. (2018). Academic and non-academic predictors of student psychological distress: The role of social identity and loneliness. *Journal of Mental Health*, *27*(3), 230-239.

Meehl, P. E. (1995). Bootstraps taxometrics: Solving the classification problem in psychopathology. *American psychologist*, *50*(4), 266.

Mirowsky, J., & Ross, C. E. (1983). Paranoia and the structure of powerlessness. *American Sociological Review*, 228-239.

Mossakowski, K. N. (2003). Coping with perceived discrimination: Does ethnic identity protect mental health? *Journal of health and social behavior*, 318-331.

Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2005). Understanding and using the Implicit Association Test: II. Method variables and construct validity. Personality and Social Psychology Bulletin, 31(2), 166-180.

Payne, K., & Lundberg, K. (2014). The affect misattribution procedure: Ten years of evidence on reliability, validity, and mechanisms. Social and Personality Psychology Compass, 8(12), 672-686.

Pieterse, A. L., & Carter, R. T. (2010). The role of racial identity in perceived racism and psychological stress among Black American adults: Exploring traditional and alternative approaches. *Journal of Applied Social Psychology, 40*(5), 1028-1053.

Postmes, T., & Branscombe, N. R. (Eds.). (2010). *Rediscovering social identity*. Hove Psychology.

Postmes, T., Haslam, S. A., & Jans, L. (2013). A single-item measure of social identification: Reliability, validity, and utility. *British journal of social psychology, 52*(4), 597-617.

Rathod, S., Phiri, P., Harris, S., Underwood, C., Thagadur, M., Padmanabi, U., & Kingdon, D. (2013). Cognitive behaviour therapy for psychosis can be adapted for minority ethnic groups: a randomised controlled trial. *Schizophrenia Research, 143*(2-3), 319-326.

Rohner, R. P. (1980). Worldwide tests of parental acceptance-rejection theory: An overview. *Behavior Science Research, 15*(1), 1-21.

Rubin, M., Paolini, S., & Crisp, R. J. (2010). A processing fluency explanation of bias against migrants. *Journal of Experimental Social Psychology, 46*(1), 21-28.

Schofield, P., Ashworth, M., & Jones, R. (2011). Ethnic isolation and psychosis: re-examining the ethnic density effect. *Psychological medicine*, *41*(6), 1263-1269.

Sitko, K., Bentall, R. P., Shevlin, M., & Sellwood, W. (2014). Associations between specific psychotic symptoms and specific childhood adversities are mediated by attachment styles: an analysis of the National Comorbidity Survey. *Psychiatry research*, *217*(3), 202-209.

Storrie, K., Ahern, K., & Tuckett, A. (2010). A systematic review: students with mental health problems—a growing problem. *International journal of nursing practice*, *16*(1), 1-6.

Tajfel, H. (1970). Experiments in intergroup discrimination. *Scientific American*, *223*(5), 96-103.

Tajfel, H., Billig, M. G., Bundy, R. P., & Flament, C. (1971). Social categorization and intergroup behaviour. *European journal of social psychology*, *1*(2), 149-178.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The social psychology of intergroup relations*, *33*(47), 74.

Taylor, P. J., Rietzschel, J., Danquah, A., & Berry, K. (2014). The role of attachment style, attachment to therapist, and working alliance in response to psychological therapy. *Psychology and Psychotherapy: Theory, Research and Practice*, *88*(3), 240-253.

The National Institute for Health and Care Excellence (2014). *Psychosis and schizophrenia in adults: Treatment and management*. NICE clinical guideline 178.

Thewissen, V., Bentall, R. P., Lecomte, T., van Os, J., & Myin-Germeys, I. (2008). Fluctuations in self-esteem and paranoia in the context of daily life. Kay *Journal of abnormal psychology*, *117*(1), 143.

Thewissen, V., Bentall, R. P., Oorschot, M., à Campo, J., van Lierop, T., van Os, J., & Myin-Germeys, I. (2011). Emotions, self-esteem, and paranoid episodes:

An experience sampling study. *British Journal of Clinical Psychology*, *50*(2), 178-195.

Thomas, J., Bentall, R. P., Hadden, L., & O'Hara, L. (2017). Ethnic identity and paranoid thinking: Implicit out-group preference and language dominance predict paranoia in Emirati women. *Journal of behavior therapy and experimental psychiatry*, *56*, 122-128.

Trower, P., & Chadwick, P. (1995). Pathways to defense of the self: A theory of two types of paranoia. *Clinical psychology: Science and practice*, *2*(3), 263-278.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Basil Blackwell.

Turner, J. C., Oakes, P. J., Haslam, S. A., & McGarty, C. (1994). Self and collective: Cognition and social context. *Personality and social psychology bulletin*, *20*(5), 454-463.

Van Os, J., Hanssen, M., Bijl, R. V., & Ravelli, A. (2000). Strauss (1969) revisited: a psychosis continuum in the general population? *Schizophrenia research*, *45*(1), 11-20.

Veling, W., Susser, E., Van Os, J., Mackenbach, J. P., Selten, J. P., & Hoek, H. W. (2008). Ethnic density of neighborhoods and incidence of psychotic disorders among immigrants. *American Journal of Psychiatry*, *165*(1), 66-73.

Wickham, S., Sitko, K., & Bentall, R. P. (2015). Insecure attachment is associated with paranoia but not hallucinations in psychotic patients: the mediating role of negative self-esteem. *Psychological Medicine*, *45*(7), 1495-1507.

Yoo, H. C., & Lee, R. M. (2008). Does ethnic identity buffer or exacerbate the effects of frequent racial discrimination on situational well-being of Asian Americans? *Journal of Counselling Psychology*, *55*(1), 63.

Appendices

Appendix A: Taxometrics study

Schizophrenia Research

Do delusions of paranoia exist on a continuum with subclinical paranoia? A multi-method taxometric study

A. Elahi [a, *], G. Perez Algorta [b], F. Varese [c], J.C. McIntyre [a], R.P. Bentall [a]
[a] University of Liverpool, Institute of Psychology, Health and Society, Waterhouse Building, Block B, Brownlow St, Liverpool L69 3GL, United Kingdom [b] Lancaster University, Spectrum Centre for Mental Health Research, Furness Building C73, Lancaster LA1 4YG, United Kingdom [c] University of Manchester, Division of Psychology and Mental Health, School of Health Sciences, Zochonis Building, Manchester M13 9PL, United Kingdom

Abstract

Background: There is widespread interest in whether psychosis exists on a continuum with healthy functioning. Previous research has implied that paranoia, a common symptom of psychosis, exists on a continuum but this has not been investigated using samples including both patients and non-patients and up-to-date taxometric methods.
Aim: To assess the latent structure of paranoia in a diverse sample using taxometric methods.
Method: We obtained data from 2836 participants, including the general population as well as at-risk mental state and psychotic patients using the P-scale of the Paranoia and Deservedness Scale. Data were analysed using three taxometric procedures, MAMBAC, MAXEIG and L-MODE (Ruscio, 2016), and two sets of paranoia indicators (subscales and selected items from the P scale), including and excluding the patient groups.
Results: Eleven of the twelve analyses supported a dimensional model. Using the full sample and subscales as indicators, the MAMBAC analysis was ambiguous. Overall, the findings converged on a dimensional latent structure.
Conclusions: A dimensional latent structure of paranoia implies that the processes involved in sub-clinical paranoia may be similar to those in clinical paranoia.

Keywords: Paranoia, Taxometrics, Dimensional, MAMBAC, MAXEIG, L-MODE

1. Introduction

There is debate about whether psychotic symptoms lie on a continuum with less severe psychotic-like experiences, which are widespread in the general population (Lawrie et al., 2010). This debate has focused on the distinction between psychosis and schizotypal traits (Lenzenweger, 2011), with less attention being paid to specific symptoms.

Paranoid (persecutory) beliefs are the most common type of delusion, experienced by approximately 90% of first episode schizophrenia-spectrum patients. In a general population sample, Freeman et al. (2005) reported that paranoid beliefs occur on a hierarchy of severity, with rare and severe delusions of paranoia building upon much more common forms of suspiciousness. Using latent class analysis and factor mixture modelling, they later found evidence of a paranoia continuum with four underlying components: interpersonal sensitivity, mistrust, ideas of reference and ideas of persecution (Bebbington et al., 2013).

Taxometric methods, developed by Meehl (1995) are specifically designed to test for discontinuities in a spectrum of psychopathology. These procedures have been strengthened with new interpretational strategies that rely on quantitative indexes and researchers now use multiple analyses to interrogate a dataset (Ruscio et al., 2006). The methods have been used to study whether schizotypy is a dimensional construct, with mixed results (e.g. Rawlings et al., 2008; Lenzenweger, 2011). A systematic review reported that, with the exception of studies of alcoholism and addictions, most high-quality taxometric analyses, including those of schizotypy, have found continua between healthy functioning and mental illness (Haslam et al., 2012). It is possible that one source of ambiguity in the schizotypy findings has been the focus on a broad diagnostic concept, rather than specific symptoms. To our knowledge, no taxometric studies of paranoia have been reported. We therefore conducted taxometric analyses on data collected using a large population sample as well as patients with psychosis or with an at-risk mental state (ARMS; Yung et al., 2005).

The data was compiled from published and unpublished studies conducted over a seven-year period (2008 to 2015). Analyses were carried out on scores on the Persecution and Deservedness Scale (PaDS; Melo et al., 2009), a questionnaire designed to assess clinical and subclinical paranoia, which includes separate scales measuring beliefs about persecution (P) and beliefs about whether persecution is deserved (D). Only the former is suitable for taxometric analyses because many deservedness items were not designed to measure strength of paranoid conviction and many responses were missing by design (participants complete a deservedness item only if scoring above a threshold of 2 on a corresponding persecution item).

2. Methods

2.1. Participants

Data was obtained from studies that included 2874 participants who had been asked to complete the PaDS, consisting of 2357 participants from the general population (2157 were students), 157 participants with an at-risk mental state (ARMS) for psychosis and 360 patients with schizophrenia-spectrum diagnoses. Of these, 38 participants (20 students, 2 non-student controls, and 16 clinical patients, 1.3% of the total) did not provide complete PaDS data, so our final sample size was 2836. Participants with

missing data did not differ on age or gender compared to those with complete data when the entire data set or individual groups were considered.

Student participants were recruited via cross-sectional studies conducted at Bangor, Lancaster, Liverpool and Manchester Universities: Pickering et al. (2008), Melo et al. (2009), Udachina et al. (2009) and Varese et al. (2011, 2012) and unpublished studies conducted for PhD qualifications by F. Varese and A. Udachina at Bangor University (both awarded 2012). The paranoia measures were completed online or in face-to-face interviews.

Responses were mostly not anonymous, and participants received course credits for completing the questionnaire; however, data was anonymised during the compilation of the present dataset.

Patients with schizophrenia-spectrum disorders were recruited through a series of cross-sectional and case-control studies, along with the non-student healthy controls. These studies were Varese et al. (2011, 2012), Morrison et al. (2013), Sellwood et al. (2013), Udachina et al. (2014) and Wickham et al. (2015) as well as unpublished studies conducted by K. Sitko and M. Haarmans while undertaking PhDs at Liverpool University (both awarded 2016). Participants varied in their clinical diagnoses which were clinician-assigned. However, the diagnoses for 351/360 patients and 200 non-student controls were supported by a researcher-conducted mental state interview using the Positive and Negative Syndrome Scale (see below). Patients were judged to meet the criteria for schizophrenia (273), acute and transient psychosis (12), schizoaffective disorder (34), delusional disorder (5), unspecific nonorganic psychosis (24), psychosis due to substance misuse (5), bipolar disorder (1) and postpartum psychosis (1). Five participants did not have a diagnosis recorded.

Those with an at-risk mental state were from two of five sites participating in a cognitive behavioural therapy trial (Morrison et al., 2012) and all met the at-risk mental health criteria based on a researcher-administered interview using the Comprehensive Assessment of At-Risk Mental States (CAARMS; Yung et al., 2005).

All studies were approved by relevant university and National Health Service research ethics committees. As many of the studies were carried out at the same sites, care was taken to ensure that no participant contributed data more than once; in these cases, scores were taken from the earliest study. Demographic data (age ranges, gender) and PaDS scores are reported in Table 1.

Table 1 Demographic data and PaDS scores.

	Students from the general population	Controls from the general population	At-risk mental state participants	Clinical patients
Females (N)	1502	118	90	178
Males (N)	615	80	67	166
Not disclosed (N)	20			
Age mean (±SD)	21.6 (±5.8)	37.3 (±13.0)	20.9 (±4.0)	39.8 (±12.4)
PaDS total scores mean (±SD)	14.1 (±8.5)	8.5 (±7.9)	22.6 (±9.8)	18.8 (±11.1)

2.2. Measures

The PaDS consists of two ten-item scales measuring strength of persecutory belief (P scale) and appraisals about whether perceived persecution is deserved (D scale, not used in this study). Each item is scored on a 5-point Likert scale. The possible range of P scores is between 0 and 40.

The P scale has been validated in clinical and non-clinical samples and correlates with Fenigstein and Vanable's (1992) paranoia scale, r = 0.78, N = 605 (Melo et al., 2009). There are no published cut-offs. However, if a cut-off of +1SD was used to estimate a paranoid taxon size, 13.24% of the students, 4.55% of the general population controls, 50.32% of ARMS patients and 36.91% of schizophrenia spectrum patients would be assigned to the paranoid category (498 participants). These figures seem reasonable given that previous studies of young adults have reported that a sizeable minority experience paranoid beliefs (for example, 12.6% of the Dunedin cohort study were judged paranoid; Poulton et al., 2000) and that many of the patients were in remission at the time of assessment.

A principal component analysis of the P items in the present dataset yielded a single component accounting for approximately 48% of the variance. The P scale was reliable with McDonald's coefficient $omega_{hierarchical}$ for the whole scale (Dunn et al., 2014) = 0.88 (95% CI = 0.87–0.89). Additionally, 351 clinical participants and 200 controls were assessed by interviewers using the positive and negative subscales of the Positive and Negative Syndrome Scale (PANSS; Kay and Opler, 1987); PaDS P scores correlated with PANSS delusions, r = 0.53, p b 0.001 in the sample as a whole and r = 0.42, p b 0.001 in the clinical participants only, and with PANSS suspiciousness, r = 0.65, p b 0.001, in the sample as a whole and r = 0.59, p b 0.001 in the clinical participants only (these correlations could not be meaningfully computed in the non-clinical participants alone because these PANSS subscales were required to be b3, and hence there was insufficient variance in these data).

Valid quasi-continuous indicators are recommended for taxometric analyses (Walters and Ruscio, 2009) and some procedures (e.g. MAXEIG) require at least three indicators. Of the four subdomains of paranoia identified by Bebbington et al. (2013), PaDS items pertain to three, the exception being ideas of reference. Therefore, using these subdomains, we summed appropriate items to generate indicators at sub-scale level to conduct the analyses. P1, P3 and P9 were judged to constitute the category ‘ideas of persecution’ or threat of harm (e.g. P1: “There are times when I worry others might be plotting against me”); P2, P4, P6 and P7 were judged to constitute ‘interpersonal sensitivity’ to the negative opinions of others (e.g. P7: “There are people who think of me as a bad person”). P5, P8 and P10 were judged to represent ‘mistrust’ (e.g. P10: “You should only trust yourself”).

From the same analysis, MacDonald's $omega_{subscale}$ was calculated separately for the three subscales (Dunn et al., 2014). The values were 0.72, (95% CI = 0.70–0.74) for ideas of persecution, 0.76 (95% CI = 0.75–0.78) for interpersonal sensitivity, and 0.69 (95% CI = 0.67–0.71) for mistrust. Correlations between

these indicators ranged from 0.64 to 0.72. However, for taxometric analyses, it is desirable to have correlations between indicators that are as low as possible (Ruscio et al., 2006). Hence, to generate a second set of indicators, we identified items from each of the sub-scales that correlated the least with the other two sub-scale indicators. The lowest paired item correlations were between P1, P7 and P10; ranging from 0.27 to 0.37. Analyses were therefore conducted using both sets of indicators: the indicators at sub-scale level and the three single-item indicators (P1, P7 and P10). Because we recognised a risk of creating a pseudo-taxon when combining the general population and clinical samples and, analyses were first conducted on the general population alone and then on the whole sample.

We calculated the three subscales vs. full-scale correlations as a minimal indication of validity of the subscales in Table 2. Indicator validity was calculated through standardized mean differences (Cohen's d) across cases assigned to putative taxon and complement groups using the base rate classification method (Ruscio et al., 2006).

Table 2

	Harm subscale	Negative attitudes subscale	Mistrust subscale	P scale
P1	0.83∗	0.60∗	0.52∗	0.72∗
P7	0.45∗	0.70∗	0.45∗	0.62∗
P10	0.39∗	0.41∗	0.75∗	0.57∗
P scale	0.87∗	0.92∗	0.86∗	

Single-item/subscales and single-item/P scale correlations (Spearman Rank correlations, r_s).

∗ $p < 0.001$.

2.3. Statistical analyses and procedure

Taxometric programs for R (version 2014-07-29) were employed (Ruscio, 2016; available at http://ruscio.pages.tcnj.edu/quantitative methods-program-code/). Mean above minus below a cut (MAMBAC; Meehl and Yonce, 1994), maximum eigenvalue (MAXEIG; Waller and Meehl, 1998) and latent mode factor analysis (L-MODE; Waller and Meehl, 1998) were conducted to examine the convergence between the findings from different methods (Ruscio et al., 2006). Each analysis generates a characteristic plot. For the MAMBAC and MAXEIG function, the plot will be peaked when the latent variable is categorical but flat when it is dimensional. In the case of L-MODE, a bimodal graph is apparent when the data is categorical, but unimodal when the trait is dimensional.

MAMBAC, MAXEIG and L-MODE curves were compared to curves derived from simulated categorical and continuous comparison data (Ruscio et al., 2007). As well as visually inspecting the curves, we calculated the comparison curve fit index (CCFI; Ruscio et al., 2007). The CCFI is a value between 0 (dimensional) and 1 (categorical) and evaluates the fit of the curves generated by the analyses in comparison with curves that would be expected if the construct was taxonic (categorical) or dimensional. Ruscio et al. (2006) suggest that the greater the deviation of a CCFI score from 0.5, the stronger the result. However, a CCFI score between 0.4 and 0.6 should be interpreted with caution.

3. Results

A full range of PaDS scores was obtained from all groups; this was expected as some patients were in remission and some of the ARMS group showed no

paranoid symptoms when being tested. A one-way ANOVA on these scores was highly significant, F [3,2382] = 101.39, p b 0.001, with all groups differing from the others (Tukey p b 0.001).

Results for the population sample (N = 2357) and then the whole sample combined (N = 2836) are presented in Table 3. We would expect a taxon, if present, to be particularly evident in the latter analyses.

There were 2 (types of indicators) × 2 (datasets) × 3 (taxometric methods) = 12 analyses in total. The estimated validity of the item indicators was above a Cohen's d value of 1.50 as recommended in taxometric analyses (Meehl, 1995). These values were higher than 2.0 when the sub scales were used as indicators. Estimated within-group correlations were non-problematic. Mean indicator correlations were higher in the full sample. When using subscales as indicators, the within-group correlations ranged from 0.04 to 0.49; the majority of values were below 0.30. The within group correlations when using individual item indicators were between 0.002 and 0.18.

Table 3 provides the summary values (CCFI) for these analyses. All but one analysis supports a continuum latent structure (CCFI values ranged from 0.08 to 0.59). The exception (0.59) that was observed when the whole sample was analysed using MAMBAC with the item indicators, reflected an ambiguous structural solution.

Table 3
CCFI values for the three item indicators and full scale.

	MAMBAC	MAXEIG	L-MODE
General population samples item indicators	0.297	0.134	0.277
Whole sample item indicators	0.591	0.201	0.357
General population sample full scale	0.171	0.081	0.187
Whole sample full scale	0.327	0.122	0.234

Note: CCFI is a value between 0 (dimensional) and 1 (categorical). The greater the deviation of a CCFI score from 0.5, the stronger the result; when a CCFI score is between 0.4 and 0.6, results should be interpreted with some caution.

The graphical outputs of all analyses are shown in Fig. 1. The graphical representations concord with the CCFI data; eleven of the graphical outputs illustrate a dimensional underlying structure, while the MAMBAC function with the whole sample and item indicators poorly discriminates between the models

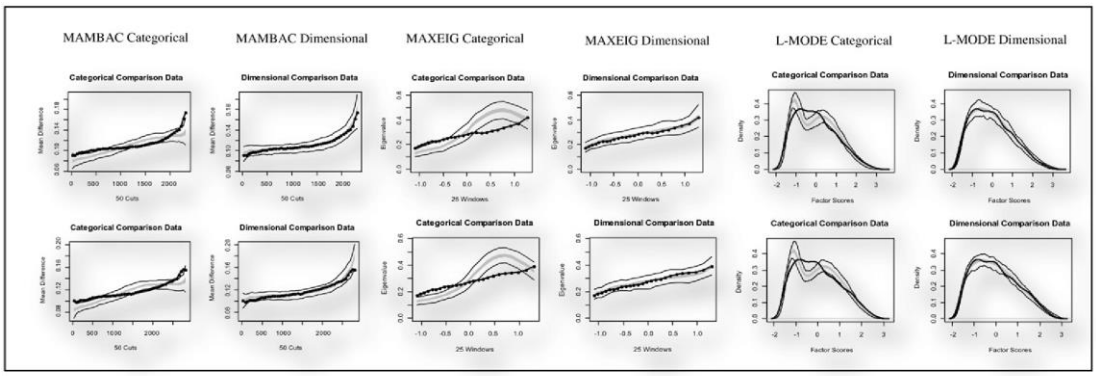


Fig. 1. The dark line with data points represents sample data. Grey regions reflect taxonic or dimensional solutions that were generated by stimulations based on parameters extracted from the sample data. Visual inspection therefore allows a judgment about whether the sample data more closely fits a prototypical categorical or dimensional solution. The top row of taxometric graphs were derived from the general population sample and the bottom row from the full sample. The graphs illustrate the latent structure of paranoia within the general population and full sample using the three item indicators. Apart from the MAMBAC curve for the full sample, which is ambiguous, the other graphs fit a dimensional underlying latent structure of paranoia.

4. Discussion

We examined the latent structure of paranoid beliefs in a large sample of patients and participants from the general population. With one exception, the three taxometric methods, using two sets of indicators, demonstrated that the underlying structure of paranoia fitted continuous rather than taxonic simulation data.

The exception was the MAMBAC analysis with item indicators that included patients. Although it is not clear why this analysis did not conform to the results of the remaining eleven, it is important to note that the analyses including patients were most vulnerable to the identification of a pseudo-taxon. Despite this, in eleven out of twelve cases the results were unambiguously non-taxonic and, even in the case of the exception, the results were ambiguous (a taxon was not suggested but the continuum hypothesis was also not supported). Hence, we argue that the hypothesis that paranoia exists on a continuum with healthy functioning, as suggested by Freeman et al. (2005) and Bebbington et al. (2013), was supported. This finding is consistent with general models of a positive psychosis symptom continuum (e.g. Claridge, 1987) and with research that finds evidence for continua across most areas of psychopathology (Haslam et al., 2012).

Confidence in the findings is strengthened by concordance with previous findings using different methods. Using a population sample Freeman et al. (2005) found that the distribution of paranoia closely fitted a single continuous dimension. Bebbington et al. (2013) used a factor mixture modelling analysis on data collected from an epidemiological sample, again finding evidence of a continuum.

Our findings contrast with studies that have reported taxons in schizotypy (e.g. Everett and Linscott, 2015; Linscott et al., 2006; Linscott et al., 2010; Morton et al., 2016) although other studies have not

reported schizotypy taxons (e.g. Ahmed et al., 2012; Ahmed et al., 2013). Haslam et al. (2012) have argued that studies with the highest methodological rigor have generally yielded dimensional results. A strength of our study is the consideration of non-clinical and clinical samples. We acknowledged the risk of creating a pseudo-taxon when including the clinical participants but pursued this strategy anyway because it was conservative with respect to supporting the continuum hypothesis (in the event, no taxon was detected).

Another difference between, on the one hand, this study and the studies of Freeman et al. (2005) and Bebbington et al. (2013), and, on the other hand, the schizotypy studies that have produced mixed results, is the focus on a single symptom. There has been considerable debate about the extent to which schizophrenia/psychosis is a heterogeneous concept (Bentall, 2003).

Although recent studies have converged on multidimensional structures that incorporate a positive symptom (hallucinations and delusions) syndrome (van Os and Kapur, 2009; Reininghaus et al., 2016) the existence of this syndrome does not guarantee that the component symptoms have common underlying causes (Borsboom and Cramer, 2013). An intriguing possibility is that psychotic symptoms have different latent structures. It would be interesting, for example, to examine the latent structure of hallucinations.

Some limitations of the present study should be noted. First, 90% of the population sample consisted of students, although their age range was close to that of the at-risk mental state group. Despite evidence of the internal consistency and convergent validity of the PaDS, we did not measure ideas of reference, which are a facet of paranoid thinking (Bebbington et al., 2013). Also, although previous comparisons found no significant differences (Wagner et al., 2014), we could not check for systematic differences between online and face-to-face completion of the questionnaire.

The study has clinical and research implications. Our findings suggest there may be shared psychological mechanisms in clinical and non-clinical paranoia and, therefore, that studies with high scoring non-patients may be informative about targets for intervention. It would be useful to carry out studies with other measures of paranoia while incorporating measures of psychological and neuropsychological functioning that have been hypothesized to play a role in paranoid ideation; for example, self-esteem, theory of mind and the jumping to conclusions bias (Bentall et al., 2009). Given the evidence linking social adversity to psychosis, and that some of these effects may be symptom-specific (Bentall et al., 2014), research on how environmental and other risk factors influence where people tend to fall on the continuum may point the way towards preventative public health policies.

Contributors
The study was conceived by AE, FV and RPB. Statistical analysis and interpretation of the data was undertaken by all of the authors, who also all contributed to the drafting and revision of the manuscript. All authors have approved the final version of the manuscript.

Conflict of interest

All authors declare that they have no conflicts of interest.

Funding body agreements and policies
AE and JCM are supported by funding from the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care—North West Coast. The views expressed are those of the authors and not necessarily those of the NHS, the NIHR or the Department of Health.

Acknowledgements
We are grateful for the support and assistance received from Drs Sophie Wickham, Kasia Sitko, Maria Haarmans and Alisa Udachina while compiling the datasets considered in this report.

References

Ahmed, A.O., Green, B.A., Buckley, P.F., McFarland, M.E., 2012. Taxometric analyses of paranoid and schizoid personality disorders. Psychiatry Res. 196 (1), 123–132.

Ahmed, A.O., Green, B.A., Goodrum, N.M., Doane, N.J., Birgenheir, D., Buckley, P.F., 2013. Does a latent class underlie schizotypal personality disorder? Implications for schizophrenia. J. Abnorm. Psychol. 122 (2), 475.

Bebbington, P.E., McBride, O., Steel, C., Kuipers, E., Radovanovič, M., Brugha, T., Jenkins, R., Meltzer, H.I., Freeman, D., 2013. The structure of paranoia in the general population. Br. J. Psychiatry http://dx.doi.org/10.1192/bjp.bp.112.119032.

Bentall, R.P., 2003. Madness Explained: Psychosis and Human Nature. Penguin Group, London.

Bentall, R.P., Rowse, G., Shryane, N., Kinderman, P., Howard, R., Blackwood, N., Moore, R., Corcoran, R., 2009. The cognitive and affective structure of delusions of paranoia: a transdiagnostic investigation of patients with schizophrenia spectrum disorders and depression. Arch. Gen. Psychiatry 66, 236–247.

Bentall, R.P., de Sousa, P., Varese, F., Wickham, S., Sitko, K., Haarmans, M., Read, J., 2014. From adversity to psychosis: pathways and mechanisms from specific adversities to specific symptoms. Soc. Psychiatry Psychiatr. Epidemiol. 49 (7), 1011–1022.

Borsboom, D., Cramer, A.O., 2013. Network analysis: an integrative approach to the structure of psychopathology. Annu. Rev. Clin. Psychol. 9, 91–121.

Claridge, G., 1987. 'The schizophrenias as nervous types' revisited. Br. J. Psychiatry 151 (6), 735–743.

Dunn, T.J., Baguley, T., Brunsden, V., 2014. From alpha to omega: a practical solution to the pervasive problem of internal consistency estimation. Br. J. Psychol. 105 (3), 399–412.

Everett, K.V., Linscott, R.J., 2015. Dimensionality vs taxonicity of schizotypy: some new data and challenges ahead. Schizophr. Bull. 41 (Suppl. 2), S465–S474.

Fenigstein, A., Vanable, P.A., 1992. Paranoia and self-consciousness. J. Pers. Soc. Psychol. 62, 129–134.

Freeman, D., Garety, P.A., Bebbington, P.E., Smith, B., Rollinson, R., Fowler, D., Kuipers, E., Ray, K., Dunn, G., 2005. Psychological investigation of the structure of paranoia in a non-clinical population. Br. J. Psychiatry 186, 427–435.

Haslam, N., Holland, E., Kuppens, P., 2012. Categories versus dimensions in personality and psychopathology: a

quantitative review of taxometric research. Psychol. Med. 42, 903–920.

Kay, S.R., Opler, L.A., 1987. The Positive and Negative Syndrome Scale (PANSS) for schizophrenia. Schizophr. Bull. 13, 507–518.

Lawrie, S.M., Hall, J., Owens, D.G.C., Johnstone, E.C., 2010. The 'continuum of psychosis': scientifically unproven and clinically impractical. Br. J. Psychiatry 197, 423–425.

Lenzenweger, M.F., 2011. Schizotypy and Schizophrenia. Guilford, New York.

Linscott, R.J., Marie, D., Arnott, K.L., Clarke, B.L., 2006. Over-representation of Maori New Zealanders among adolescents in a schizotypy taxon. Schizophr. Res. 84 (2), 289–296.

Linscott, R.J., Allardyce, J., van Os, J., 2010. Seeking verisimilitude in a class: a systematic review of evidence that the criterial clinical symptoms of schizophrenia are taxonic. Schizophr. Bull. 36 (4), 811–829.

Meehl, P.E., 1995. Bootstraps taxometrics: solving the classification problem in psychopathology. Am. Psychol. 50 (4), 266.

Meehl, P.E., Yonce, L.J., 1994. Taxometric analysis: I. Detecting taxonicity with two quantitative indicators using means above and below a sliding cut (MAMBAC procedure). Psychol. Rep. 74 (3), 1059–1274.

Melo, S., Corcoran, R., Bentall, R.P., 2009. The persecution and deservedness scale. Psychol. Psychother. 82, 247–260.

Morrison, A.P., French, P., Stewart, S.L.K., Birchwood, M., Fowler, D., Gumley, A.I., Jones, P.B., Bentall, R.P., Lewis, S.W., Murray, G.K., Patterson, P., Brunet, K., Conroy, J., Parker, S., Reilly, T., Byrne, R., Davies, L.M., Dunn, G., 2012. Early Detection and Intervention Evaluation for people at risk of psychosis (EDIE-2): a multisite randomised controlled trial of cognitive therapy for at risk mental states. Br. Med. J. 334, e2233.

Morrison, A.P., Shryane, N., Beck, R., Heffernan, S., Law, H., McCusker, M., Bentall, R.P., 2013. Psychosocial and neuropsychiatric predictors of subjective recovery from psychosis. Psychiatry Res. 208 (3), 203–209.

Morton, S.E., O'Hare, K.J., Maha, J.L., Nicolson, M.P., Machado, L., Topless, R., Merriman, T.R., Linscott, R.J., 2016. Testing the validity of taxonic schizotypy using genetic and environmental risk variables. Schizophr. Bull. http://dx.doi.org/10.1093/schbul/sbw108

van Os, J., Kapur, S., 2009. Schizophrenia. Lancet 374:635–645. http://dx.doi.org/10.1016/ S0140-6736(09)60995-8.

Pickering, L., Simpson, J., Bentall, R.P., 2008. Insecure attachment predicts proneness to paranoia but not hallucinations. Personal. Individ. Differ. 44 (5), 1212–1224.

Poulton, R., Caspi, A., Moffitt, T.E., Cannon, M., Murray, R., Harrington, H., 2000. Children's self-reported psychotic symptoms and adult schizophreniform disorder: a 15-year longitudinal study. Arch. Gen. Psychiatry 57 (11), 1053–1058.

Rawlings, D., Williams, B., Haslam, N., Claridge, G., 2008. Taxometric analysis supports a dimensional latent structure for schizotypy. Personal. Individ. Differ. 44 (8), 1640–1651.

Reininghaus, U., Böhnke, J.R., Hosang, G., Farmer, A., Burns, T., McGuffin, P., Bentall, R.P., 2016. Evaluation of the validity and utility of a transdiagnostic psychosis dimension encompassing schizophrenia and bipolar disorder. Br. J. Psychiatry http://dx.doi.org/10.1192/bjp.bp.115.167882.

Ruscio, J., 2016. Taxometric Programs for the R Computing Environment: User's Manual. Available at. http://ruscio.pages.tcnj.edu/quantitative-methods-program-code/.

Ruscio, J., Haslam, N., Ruscio, A.M., 2006. Introduction to the Taxometric Method: a Practical Guide. Lawrence Erlbaum Associates, Mahwah, NJ.

Ruscio, J., Ruscio, A.M., Meron, M., 2007. Applying the bootstrap to taxometric analysis: generating empirical sampling distributions to help interpret results. Multivar. Behav. Res. 42 (2), 349–386.

Sellwood, W., Morrison, A.P., Beck, R., Heffernan, S., Law, H., Bentall, R.P., 2013. Subjective cognitive complaints in schizophrenia: relation to antipsychotic medication dose, actual cognitive performance, insight and symptoms. PLoS One 8 (12) (p.e83774).

Udachina, A., Thewissen, V., Myin-Germeys, I., Fitzpatrick, S., O'kane, A., Bentall, R.P., 2009. Understanding the relationships between self-esteem, experiential avoidance, and paranoia: structural equation modelling and experience sampling studies. J. Nerv. Ment. Dis. 197 (9), 661–668.

Udachina, A., Varese, F., Myin-Germeys, I., Bentall, R.P., 2014. The role of experiential avoidance in delusions of paranoia: an experience sampling study. Br. J. Clin. Psychol. 53 (4), 422–432.

Varese, F., Barkus, E., Bentall, R.P., 2011. Dissociative and metacognitive factors in hallucination-proneness when controlling for comorbid symptoms. Cogn. Neuropsychiatry 16 (3), 193–217.

Varese, F., Barkus, E., Bentall, R.P., 2012. Dissociation mediates the relationship between childhood trauma and hallucination-proneness. Psychol. Med. 42, 1025–1036.

Wagner, B., Horn, A.B., Maercker, A., 2014. Internet-based versus face-to-face cognitive behavioral intervention for depression: a randomized controlled non-inferiority trial. J. Affect. Disord. 152, 113–121.

Waller, N.G., Meehl, P.E., 1998. Multivariate Taxometric Procedures:

Distinguishing Types From Continua. Sage Publications Inc.

Walters, G.D., Ruscio, J., 2009. Where do we draw the line? Assigning cases to subsamples for MAMBAC, MAXCOV, and MAXEIG taxometric analyses. Assessment 17 (3), 321–333.

Wickham, S., Sitko, K., Bentall, R.P., 2015. Insecure attachment is associated with paranoia but not hallucinations in psychotic patients: the mediating role of negative self-esteem. Psychol. Med. 45 (07), 1495–1507.

Yung, A.R., Yuen, H.P., McGorry, P.D., Phillips, L.J., Kelly, D., Dell'Olio, M., 2005. Mapping the onset of psychosis: The Comprehensive Assessment of At Risk Mental States (CAARMS). Aust. N. Z. J. Psychiatry 39, 964–971

Appendix B: Social Identity and Psychosis

Received: 3 February 2016 Revised: 1 August 2016 Accepted: 2 August 2016 DOI 10.1111/spc3.12273

Social identity and psychosis: Explaining elevated rates of psychosis in migrant populations

Jason C. McIntyre | Anam Elahi | Richard P. Bentall

Abstract

A substantial body of literature suggests that migrants are at greater risk of developing psychotic symptoms, such as paranoia, compared to non-migrants. To date, researchers have been unable to identify the primary cause of this effect, finding scarce support for biological, diagnostic, and economic explanations. Social determinants have received little empirical attention in this domain, which we assert is a critical gap in the literature. Here, we propose that the social identity approach offers a framework to help explain the elevated rates of psychosis among migrants, and in turn inform policies and interventions to address this important mental health issue. We propose that cultural identities play a central role in mitigating the psychological precursors of psychosis and that disidentification and social disconnection subsequent to migration could initiate or exacerbate psychosis for multiple generations. We draw together research from social and clinical psychology to detail a social identity approach to psychosis in migrant populations, and make recommendations for future research.

INTRODUCTION

Over the last decade, there has been exponentially increasing research on the impact of social identification and group belonging (Hornsey, 2008; Tajfel, 1972) on physical and mental health (S. A. Haslam, Jetten, Postmes, & C. Haslam, 2009; Jetten, C. Haslam, & Alexander 2012). With respect to mental health, this research has largely focused on the common psychiatric disorders such as anxiety and depression, as well as the more general construct of wellbeing (see review by S. A. Haslam et al. 2009). We propose that the social identity approach (SIA) may have important implications for other mental health outcomes, in particular, psychosis: the spectrum of mental illnesses associated with a loss of contact with reality, which typically presents as positive (e.g. delusional beliefs and hallucinations) and/or negative (e.g. absence of emotions and motivation) symptoms. It is clear that this approach has the potential to inform research on many of the pathways to psychosis at the population level. However, in the present instance, we focus on the issue of psychosis in migrant populations, which are consistently higher than those found among non-migrants (Cantor-Graae & Selten, 2014).

In the following sections we detail our proposition that the higher rates of psychosis experienced by migrants and people from ethnic minority groups can be explained by cultural disidentification, reduced feelings of belonging, and a lack of positive group memberships. First, we detail evidence for why we think that identity is an important determinant of psychosis (in particular, paranoia) and the psychological processes that underpin the proposed relationship. Further, we discuss how factors such as discrimination and intergroup contact may impact on identity and psychotic symptoms among migrants. Finally, we provide a blueprint for future research on psychosis utilizing SIAs, and call for greater integration of social psychology, clinical psychology, and psychiatry to better understand psychosis and its determinants.

THE PSYCHOTIC DISORDERS

It should be pointed out at the outset that the concept of psychosis is a broad one and that the taxonomy of psychotic disorders has been the subject of continuous debate since the middle years of the 19th century. Although patients with psychotic symptoms are most often diagnosed as suffering from schizophrenia, schizoaffective disorder or bipolar disorder according to conventional diagnostic criteria (for example, those in the American Psychiatric Association's Diagnostic and Statistical Manual for Psychiatric Disorders and the World Health Organization's International Classification of Disease), there is little evidence that these categories reflect “natural kinds” (Bentall, 2004). Indeed, many patients have symptoms that stride these categories (Tamminga, Pearlson, Keshavan, Sweeney, Clementz, & Thaker, 2014). It has recently become recognized that sub-clinical psychotic experiences are relatively common in

epidemiological samples (Van Os, Hanssen, Bijl, & Ravelli, 2000) and that these kinds of experiences lie on a continuum with healthy functioning (Bebbington et al. 2013; Claridge, 1990; Freeman et al. 2005). One approach to capturing this kind of variation involves defining psychosis in terms of five independent dimensions of positive symptoms, negative symptoms, cognitive disorganization, depression, and excitement/mania (Van Os & Kapur, 2009), but an alternative approach favored by psychological researchers has been to identify mechanisms involved in specific symptoms such as hallucinations or delusions (Bentall, 2004). In this paper, our focus is on the positive symptoms and, in particular, the most common of the positive symptoms: delusions of paranoia (irrational beliefs about persecution), which have been extensively investigated by psychological researchers (Bentall, Corcoran, Howard, Blackwood, & Kinderman, 2001; Freeman et al. 2006).

In recent years, research on epidemiological, patient, and prospective samples has identified substantial social risk factors for the positive symptoms of psychosis, including exposure to poverty, social inequality, and urban environments in childhood, childhood trauma such as sexual and physical abuse or bullying, separation from parents at an early age, and victimization in adulthood (Beards, Gayer-Anderson, Borges, Dewey, Fisher, & Morgan, 2013; Bentall et al. 2014; Varese et al. 2012). As already noted, although these factors may have implications for social identity more broadly, our focus of concern in this paper is the elevated rates of psychosis in migrant and ethnic minority populations (Bhugra et al. 1997; Cantor-Graae & Selten, 2014; Fearon et al. 2006; King, Coker, Leavey, Hoare, & Johnson-Sabine, 1994; Van Os, Castle, Takei, Der, & Murray, 1996), which, according to past research, cannot be explained by diagnostic biases, selective migration, socioeconomic status, or genetic differences (Kirkbride, Barker, Cowden, Stamps, Yang, Jones, & Coid, 2008; Morgan, Charalambides, Hutchinson, & Murray, 2010; Sharpley, Hutchinson, Murray, & McKenzie, 2001). Thus, there is a need to consider new approaches to this problem that focus on social rather than biological determinants.

Here, we argue that the SIA may hold the key to understanding these elevated rates. Specifically, we propose that first- and second-generation migrants who struggle to maintain adaptive social identities may be at higher risk of developing psychosis. As proposed by Berry and Kim (1998), migrants who do not identify with their culture of birth, nor their newly discovered culture, may be at risk of social marginalization and its associated stressors. These stressors may be exacerbated among second-generation migrants (people born to migrant parents) who feel disconnected from their family's culture and the culture within which they live. This is because they may feel weaker ties to their original cultural identity, having not grown up in that culture. Moreover, second-generation migrants may not completely identify with their culture of birth while also

being subjected to the same types of prejudice and isolation faced by first generation migrants. This in turn may lead to feelings of uncertainty and low self-esteem, both of which have been shown to predict psychosis onset (Kramer & Wei, 1999; Thewissen, Bentall, Lecomte, van Os, & Myin-Germeys, 2008).

THE SOCIAL IDENTITY APPROACH

The SIA comprises two influential theories: social identity theory (Tajfel & Turner, 1979) and self-categorization theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). These two theoretical frameworks are highly related and emerge from the same philosophical perspective. Self-categorization theory, however, focuses on individual processes and how people develop self-concepts by virtue of the different groups and categories to which they belong (e.g. athlete, woman, and human). Social identity theory, conversely, emphasizes intergroup processes and describes how identification contributes to differences in attitudes and behaviors towards ingroups ("us") and outgroups ("them").

Fundamental to self-categorization theory is the idea that self-categorization can occur at several different levels. For example, at the superordinate level, people may develop a human identity whereby individuals see themselves as part of humanity. People may also categorize themselves at the intermediate level (social identity) as a member of social group ("us") that is distinct from other social groups ("them"). Finally, at the subordinate level (personal identity) self-categorizations can occur based on interpersonal comparisons that highlight personal idiosyncrasies. It should be noted that the intermediate level of self-categorization can be broken down into finer gradients (Hornsey & Hogg, 2000) and that categorizations are dynamic insofar as they change over both time and contexts (Turner, Oakes, S. A. Haslam, & McGarty, 1994). For example, when a person switches career, their tendency to categorize themselves in terms of their previous profession might wane. Similarly, one's human identity may become less salient when interacting with animals that display human-like behaviors and more salient when watching the moon landing. Changes in identity are also argued to be functionally dependent ("functional antagonism"): As the salience of one self-category increases, the salience of other categories consequently decreases (Turner et al. 1987).

The categories that define self-concepts give rise to social identities that are equally dynamic. Social Identity theory argues that as different social identities become salient, they affect how people behave towards ingroup and outgroup members. As demonstrated in seminal work by Tajfel, Billig, Bundy, and Flament (1971), people tend to show ingroup preferences even when groups are arbitrarily defined. In their study, Tajfel and colleagues asked participants to estimate the number of dots in a series of images projected onto a screen. Participants were then ostensibly

assigned to groups based on their tendency to overestimate or underestimate the number of dots in the image; however, in reality, participants were simply randomly allocated to over- or under-estimator groups. In a subsequent task where participants could allocate varying rewards to each group, they consistently favored the group to which they were allocated. These ingroup biases occurred despite the fact that participants were all unknown to each other, the groups were based on arbitrary criteria, there was no interaction with ingroup or outgroup members, and participants could not gain personal advantage by favoring their own group. By viewing ingroups positively and outgroups negatively, and by exaggerating the differences between ingroups and outgroups, social identity theory argues that people can enhance their personal self-image through these social comparisons. Thus, in order to maintain a positive sense of self, ingroups must be viewed favorably compared to outgroups.

The ease with which people categorize themselves and others, and show preferences for their own category, highlights how strong social identities can form. These identities may be bound to social groups, cultures, nationalities, sporting teams, and religions, to name but a few. The tendency for individuals to favour ingroups has been interpreted as a way of maintaining self-esteem, and in most circumstances identifying with multiple positively valued groups will promote a positive view of the self (Jetten et al. 2014). However, identifying with a negatively valued group may result in self-stigma, which is damaging to self-esteem and self-efficacy. Self-stigma is a problem faced by many patients suffering from severe mental illness (Corrigan, Watson, & Barr, 2006), and it has been shown to impede long-term recovery (Vass, Morrison, Law, Dudley, Taylor, Bennett, & Bentall, 2015).

Issues of identity denial, racism, and religious intolerance are problems faced by migrants across the world (Wrench & Solomos, 1993). Indeed, in unequal and diverse societies, there are many opportunities for groups to become devalued through stigma and prejudice, leading to deteriorating identities and poor mental health. Consistent with this possibility, it has been found that the extent to which people feel their group is lower in status relative to other groups predicts increased depression through reduced ingroup identification (Sani, Magrin, Scrignaro, & McCollum, 2010). That is, feeling that one's group is devalued seems to erode identification with the group, and this lack of identification leads to mental health symptoms. However, we have a very limited understanding of the mental health consequences of devaluing one's cultural identity, or having it devalued by others.

There is substantial and growing support for the health benefits of social networks. For example, it has been shown that social identification is associated with engagement in health-promoting behaviors (Laverie, 1998), slower HIV progression (Cole, Kemeny, & Taylor, 1997),

increased general wellbeing (S. A. Haslam, O'Brien, Jetten, Vormedal, & Penna, 2005; Wegge, Van Dick, Fisher, Wecking, & Moltzen, 2006), reduced symptoms of depression (Cruwys et al. 2013), and lower susceptibility to the common cold (Cohen et al. 1998). Group memberships and identification have therefore been described as a "social cure" that protects vulnerable people from a range of physical and mental health conditions (Jetten et al. 2012). Consistent with the social cure model, we propose that maintaining and developing identities following migration represents a potential social cure for psychosis and that the SIA framework can help us understand the aetiology of psychotic symptoms in this population.

MIGRATION AND IDENTITY

Bhugra (2004) defines migration as "a process of social change where an individual, alone or accompanied by others, because of one or more reasons of economic betterment, political upheaval, education or other purposes, leaves one geographical area for settlement in another geographical area". Although it has occurred throughout human history, there has been evidence of increasing rates of international migration during the late 20th and early 21st centuries (Koser, 2007). Migration may be temporary or permanent, may be to a similar or vastly different culture, and may be motivated by a need to improve one's education or career prospects or to escape political persecution and violent conflicts. Migrants could have a strong support network to rely upon during their transition, or they may have to navigate the process alone. Migration is therefore a social process that involves varying levels of stress and volition depending on the circumstances surrounding the decision to migrate.

Even when someone migrates under less stressful circumstances, the process is still characterized to some extent by uncertainty, anxiety, and loss. One issue faced by all migrants is the potential loss of their cultural identity, which is a social identity that is bound to a specific culture. Sam and Berry (2010) note that moving between cultures leads to both psychological and cultural changes (acculturation), which will then culminate in one of four possible outcomes (Berry & Kim, 1998). The first is integration, sometimes referred to as biculturalism, which occurs when a person assumes their new culture while maintaining their original cultural identity. The second, assimilation, refers to the process of embracing the new culture while disidentifying with one's original culture. Separation describes the process of rejecting the new culture while retaining one's original cultural identity. The final potential outcome is referred to as marginalization, which occurs when a person rejects both their original culture and their new culture.

According to Berry and Kim, marginalization is the most stressful of these four possible outcomes. Indeed, marginalization is associated with higher

levels of stress and depression among first and second-generation Greek Canadians (Sands & Berry, 1993) and with increased stress among Korean Canadians (Berry, Kim, Minde, & Mok, 1987). Yeh (2003) found that the stress associated with being trapped between two cultures, and alienated from both, was associated with more general mental health issues in a sample of Asian-American student migrants. Thus, feeling disconnected from multiple cultural groups is particularly stressful and psychologically harmful.

Integration is suggested to be the most beneficial form of acculturation in terms of social adjustment and mental health (Berry, 1999; Berry et al. 1987). According to curvilinear models of acculturation, people need a balance of cultural elements from both their new and previous culture to maintain good mental health. Moving too far in the direction of one cultural identity may distance oneself from important social connections that help to maintain a positive sense of self. This idea is supported by research indicating that better mental health is predicted by belonging to more social groups (Cruwys et al. 2013; Thoits, 1983), which in turn suggests that maintaining previous identities while also forming new identities may protect people from developing psychological symptoms. Similarly, it may be important to maintain identification at different categorization levels (e.g. national identity, friendship group identity, and family identity) to increase psychological resilience.

PSYCHOSIS AND THE ETHNIC DENSITY EFFECT

As noted earlier, psychotic symptoms are consistently higher among ethnic minority populations compared to majority populations. In Britain, for example, African-Caribbeans' experience a psychosis incidence rate 6.7 times higher than White Britons, while Black African and Asian psychosis incidence rates sit at 4.1 and 1.5 times higher than White Britons, respectively (Fearon et al. 2006). Although studies have generally focused on broad diagnoses, especially schizophrenia, it has been noted that paranoid (Eitinger, 1959; Hitch & Rack, 1980; Westermeyer, 1989) and manic symptoms (Bebbington, Hurry, & Tennant, 1981; Hunt, Adams, Coxhead, Sayer, Murray, & Silverstone, 1993; Leff, Fischer, & Bertelsen, 1976; Lloyd et al. 2005) are especially evident in migrant groups.

In the Netherlands, rates of psychosis among migrants seem to be related to the degree of cultural divergence between a person's culture of origin and the host culture. Specifically, migrants from Western nations have a 1.2 times higher risk of psychosis than native Dutch people, but rates are much higher in non-Western migrants from Morocco (5.9), Surinam (2.6), and the Netherlands Antilles (2.2; Veling, Selten, Susser, Laan, Mackenbach, & Hoek, 2007). A meta-analysis of 18 studies conducted in Western nations (Australia, the United Kingdom, Denmark, Sweden, and the Netherlands) reported schizophrenia incidence rates of 2.7 among

first-generation migrants and 4.5 among second-generation migrants relative to non-migrants (Cantor-Graae & Selten, 2014). These findings are consistent with the possibility that second-generation migrants are at greater risk of psychosis compared to first-generation migrants because they lack strong cultural ties to their homeland, while not completely identifying with their culture of birth. Thus, it may be that second-generation migrants are trapped in a type of identity limbo that prevents them from reaping the mental health benefits that multiple social identities provide (S. A. Haslam et al. 2009; Iyer, Jetten, Tsivrikos, Postmes, & S. A. Haslam, 2009; Jetten et al. 2014).

Possible causes of the elevated rates of psychosis among migrants have been the subject of extensive research. While the present article does not attempt to detail all of these previously proposed explanations, the extant literature suggests that biological differences do not explain ethnicity-psychosis associations. Moreover, the increased rates of psychosis among migrants do not appear to be explained by migrants living in poorer communities, vulnerable migrants selectively choosing to emigrate, or misdiagnosis of migrants by health professionals (see Sharpley et al. 2001 for a complete review). There is, however, substantial support among researchers for the idea that social factors are important.

A key finding is that ethnic density is associated with the incidence rate of psychosis in minority populations. Specifically, areas with lower numbers of ethnic minority people have higher rates of psychosis among those ethnic minority groups (Boydell et al. 2001; Halpern & Nazroo, 2000). Particularly relevant to current theorizing, in the Netherlands, Veling and colleagues (2008) found that only neighborhoods with low ethnic minority densities had elevated rates of psychosis among migrants. Migrants living in neighborhoods with a high proportion of people from their own ethnic background had psychosis rates that were not statistically different from native Dutch people. One interpretation of these data is that maintaining social and cultural ties following migration reduces the risk of psychosis.

SOCIAL IDENTITY, PSYCHOSIS, AND PARANOIA

In the above sections, we have described evidence suggesting that migrants and people from ethnic minority groups have higher rates of psychosis and that this effect is particularly marked in low ethnic density areas. We have argued that the stressors associated with migration combined with isolation and perceived discrimination may lead to reduced group memberships and disidentification, thus increasing people's risk of psychotic symptoms. In the present section, we describe why paranoia may be a disorder of group belonging and identity.

There are already important indications that the absence of positive social connections can be damaging to mental health. For example, insecure attachment styles, which are hypothesized to be the consequence of

disrupted emotional bonds between parent and infant that flow through to adult relationships (Bowlby, 1969, 1973), have been shown to be highly prevalent in patients with positive symptoms (Korver-Nieberg, Berry, Meijer, de Haan, & Ponizovsky, 2015). It has also been shown that interpersonal traumas in childhood such as separation from caregivers, neglect, physical, sexual, and emotional abuse markedly increase the risk of developing a psychotic illness in adulthood (Varese et al. 2012). Psychosis is also associated with deprived socioeconomic conditions that are likely to make optimum social connections more difficult. For example, Wicks, Hjern, and Dalman (2014) found that being raised in an economically deprived neighborhood is a risk factor for psychosis, even after controlling for genetic risk. Moreover, incidence rates of psychosis have been reported to be particularly high in urban areas with high levels of social fragmentation, even after economic variables and ethnic composition have been controlled for (Zammit, Lewis, Rasbash, Dalman, Gustafsson, & Allebeck, 2010). Together, these data suggest that social disconnection is a risk factor psychosis.

There are good reasons to think that the symptom of psychosis that is most likely to be sensitive to social identity effects is delusions of paranoia. Patients who experience this symptom believe themselves to be victims of malevolent designs by others, often to the extent of fearing for their lives. This kind of belief system is the most common symptom of first psychotic episode and is present in over 90% of patients (Moutoussis, Williams, Dayan, & Bentall, 2007). This observation appears to be cross-culturally valid, although the exact form of persecution experienced is affected by culture (Tateyama, Asai, Hashimoto, Bartels, & Kasper, 1998).

Despite differing in detail, standard psychological models of paranoia agree that these beliefs arise against a background of interpersonal vulnerability and low self-esteem, leading to the over-anticipation of interpersonal threat (Bentall et al. 2001; Freeman et al. 2006). Consistent with these models, the insecure attachment styles that are prevalent in patients with psychosis have been shown to be specifically associated with paranoia in clinical (Wickham, Sitko, & Bentall, 2015), nonclinical (Pickering, Simpson, & Bentall, 2008), and epidemiological samples (Sitko, Bentall, Shevlin, & Sellwood, 2014). Attachment-disrupting early life events such as being taken into institutional care when young (Bentall, Wickham, Shevlin, & Varese, 2012) and suffering from parental neglect (Sitko et al. 2014; Varese et al. 2012) also appear to be a specific risk factor for paranoid symptoms.

Psychological studies indicate that paranoid patients tend to have low (Bentall et al. 2008) and highly unstable (Thewissen et al. 2008) self-esteem, coupled with negative beliefs about the attitudes of others towards the self (Fowler et al. 2006; Kinderman & Bentall, 1996). These characteristics are often combined with an external locus of control in which life experiences are dominated and controlled by the actions of

powerful others (Ciufolini et al. 2015; Kaney & Bentall, 1989; Lasar, 1997; Rosenbaum & Hadari, 1985). Experience sampling studies have shown that the onset of paranoid thoughts tends to be immediately preceded by a decrease in self-esteem (Thewissen et al. 2008). Further to this, low-self-esteem and negative beliefs about others have been shown to predict the maintenance of paranoid symptoms over the long term (Fowler et al. 2012), suggesting that self-esteem is an important determinant of paranoia.

It was noted earlier that multiple social identities seem to protect against low self-esteem (Jetten et al. 2015), and hence, it seems likely that such identities could also prevent the development of the core schemas that fuel paranoid thinking. As is the case with depression, it is also plausible that lacking identity leads to maladaptive attribution styles (Cruwys, South, Greenaway, & S. A. Haslam, 2014). Indeed, when people feel social excluded, it is likely to build a foundation of mistrust and increase the likelihood that negative events will be attributed to malevolent others. Identification, however, can help people feel more certain about their futures (Hogg, 2000) and consequently reduce beliefs that life outcomes are uncontrollable. Supporting this idea, it has been shown that identification promotes an internal locus of control and subsequent better mental health (Greenaway, S. A. Haslam, Cruwys, Branscombe, Ysseldyk, & Heldreth, 2015). These findings suggest that identification may reduce paranoid ideation because it promotes attributional styles characterized by trust of others and personal control.

Because multiple group memberships protect against low self-esteem and mental health symptoms, migrants who join new groups following migration may be at lower risk of psychosis. This may be particularly important as identities associated with pre-migration group memberships become weaker. However, migrants face substantial barriers to joining and identifying with new groups, such as language barriers, discrimination, and prejudice. Further to this, normative beliefs and behaviors differ substantially between cultures. For example, local sayings, in-jokes, and varying expectations of appropriate behavior can make it more difficult for migrants to join groups and develop shared identities. Thus, there are multiple pathways by which psychosis risk may increase following migration: losing original cultural identities, failing to establish new cultural identities, and facing cultural barriers to joining groups.

In sum, there is evidence that paranoia is a disorder of social relationships and that people who lose their sense of cultural identity, and do not foster positive and meaningful identities following migration, may be at higher risk of developing delusions of paranoia. We identify reduced self-esteem, maladaptive attribution styles, lack of trust, and reduced control as potential psychological mechanisms that explain the relationship between identity and paranoia.

Below, we offer suggestions for future research to test our model.

A SOCIAL IDENTITY APPROACH TO PSYCHOSIS

The evidence presented thus far suggests that researchers need to pay greater attention to the social determinants of psychosis and to consider the social-psychological mechanisms through which these determinants have their effects. We have argued that social identities assist in promoting positive self-views, maintaining social networks, and reducing uncertainty and maladaptive attributions. While we posit that the current body of evidence necessitates a SIA to psychosis, this article is somewhat speculative. We do not argue that the elevated rates of psychosis among migrants can be solely explained by problems with identity, nor completely solved by interventions and policies that assist with identity formation. Rather, we propose that migrants are particularly vulnerable to feeling disidentified with their old and new cultures and that this could contribute, in combination with other risk factors, to the elevated rates of psychosis observed in previous studies.

To date, SIAs have been ignored by researchers examining psychosis, and it is our hope that this article will stimulate research that closes this gap. We have drawn together research from social psychology, clinical psychology, and psychiatry literatures to provide a theoretical framework that stimulates research on psychosis in migrant populations using the SIA. In order to understand the contextual, psychological, and social mechanisms that contribute to psychosis, it will be necessary for researchers from these disciplines to work together and develop programs of research. By doing this, we can ultimately achieve our aim of understanding the role of identity in contributing to paranoia in vulnerable groups, and develop policies to reduce the burden of mental ill health in these communities.

RECOMMENDATIONS FOR FUTURE RESEARCH

Ethnic density findings are our principal clue that identity maintenance may be an important determinant of psychosis, and we propose that these effects be replicated and extended using the SIA. It will be necessary to measure identification among migrants directly and to consider whether people living in low ethnic density areas who maintain strong cultural ties with their homeland are at lower risk of psychosis compared to those who do not. A critical issue to be addressed in future research will be determining whether identifying with the host culture is equally protective against psychosis as maintaining identification with the culture of origin, whether maintaining some level of both cultural identities is optimal for reducing psychosis risk, and the implications of migrants' perceptions about whether the two cultures can be considered compatible or incompatible. It will also be necessary to consider changes in identity over time. According to the social identity model of identity change (Iyer, Jetten, & Tsivrikos, 2008), it is important that individuals maintain self-continuity during times of change to preserve mental health. This

theorizing is consistent with the proposition that migrants will have better mental health outcomes if they maintain identities associated with their home culture during acculturation, and with research showing that multiple identities predict better adjustment during life transitions (Iyer et al. 2009).

Studies that examine perceived discrimination by outgroups may assist in understanding the role of prejudice and identity in psychosis. In one of the few studies that has examined ethnic identity and discrimination, it was found that possessing a stronger ethnic identity protects people from developing psychosis in discriminatory environments (Anglin, Lui, Espinosa, Tikhonov, & Ellman, 2016). Research on the rejection-identification model (Branscombe, Schmitt, & Harvey, 1999) suggests that while perceptions of prejudice are associated with reduced wellbeing, prejudice perceptions also increase minority group identification, self-esteem, and outgroup hostility when they are stable and pervasive (Branscombe et al. 1999; Schmitt, Spears, & Branscombe, 2003). Thus, it is plausible that identification may lead to paranoia through cognitions associated with outgroup hostility, that these effects may be partly offset by stronger ingroup identification and increased self-esteem, and that there is likely to be direct relationship from identity to paranoia. Accordingly, the rejection-identification model may represent a useful tool for testing the role of prejudice in contributing to identity–paranoia relationships.

Researchers may wish to test whether the quantity and quality of contact with ingroup and outgroup members are more important than neighborhood level ethnic density effects in predicting psychosis. Specifically, contact with outgroup members could contribute to identity insofar as negative contact (e.g. racist comments from an outgroup member) may dampen identification with one's new culture, while positive contact (e.g. friendly interactions with neighbors) with outgroups may foster new identities. It should be noted here that the role of prejudice in predicting attitudes and behavior towards outgroups is mixed (see Price & Wolfers, 2010; Rachlinski, Johnson, Wistrich, & Guthrie, 2009; Shelton, Richeson, Salvatore, & Trawalter, 2005) and dependent on group status and social norms. Indeed, although majority group members are more likely to follow tolerant norms (McIntyre, Constable, & Barlow, 2015), these behaviors may be perceived as contrived by minority group members (Apfelbaum & Sommers, 2009). Thus, migrants living near other ethnic minority groups may have vastly different intergroup contact experiences compared to migrants living in majority dominated areas. It has also been shown that migrants with high pre-existing ingroup identification may be at greater risk of social disconnection when confronted with negative attitudes from outgroup members (Barlow, Louis, & Terry, 2010). Strong home culture identification may therefore lead to social disconnection if it is combined with negative outgroup contact.

In relation to Berry and Kim's, (1998) model of acculturation discussed earlier, it is possible that separation (rejecting the new culture while retaining one's original cultural identity) could place migrants at higher risk of psychosis if they live in low ethnic density areas and are subjected to prejudice and discrimination. Similarly, migrants living in high ethnic density areas who reject their home culture (assimilation) may feel isolated from people who maintain their original cultural identity. Together, these data suggest that models of identification and psychosis in migrant populations should consider the role of prejudice, as well as the quantity and quality of inter- and intra-group contact.

To construct a comprehensive model, we will also need to understand the psychological mechanisms by which identification influences psychosis. We have highlighted the important role of low self-esteem, negative beliefs about others, and an external locus of control, particularly with respect to paranoid symptoms. Although self-esteem has, over time, become less central to social identity theorizing, there is nonetheless evidence that it can be promoted by multiple positive identities (Jetten et al. 2015). This appears to be also true of cultural identities. For example, ethnic identity was found to be positively associated with self-esteem among Latino students in the USA (Umaña-Taylor, 2004), and also in a longitudinal analysis of Asian, Black, and Hispanic teens (Phinney & Chavira, 1992). Given that cultural identities enhance self-esteem and that self-esteem is a risk factor for psychosis, it is plausible that self-esteem may mediate the proposed identity–psychosis relationship.

It is also likely that social identity impacts on psychosis through other mechanisms. Feeling connected to multiple social groups may reduce paranoia risk by providing diverse social sounding boards against which to test beliefs. It has been proposed that delusions of paranoia are maintained by cognitive processes that facilitate the processing of evidence that confirms pre-existing beliefs and prevents the processing of conflicting evidence (Freeman, Garety, Kuipers, Fowler, & Bebbington, 2002). Expanded social networks may increase the likelihood that bizarre beliefs will be challenged by ingroup members and that conflicting evidence will be given due consideration by people with paranoid thoughts. Stronger identification should therefore predict an increase in the likelihood that the opinions of other ingroup members will be considered when assessing belief validity. Of course, the extent to which multiple social identities reduce the risk of psychosis in this manner is likely to be dependent on the diversity of groups to which one belongs. People who belong to and identify with groups that hold similar unusual beliefs are more likely to have their beliefs confirmed, thus creating an "echo chamber effect" where ideas are constantly reverberated around the group and are not checked against reality. Conversely, people who belong to several diverse groups are less likely to have their unusual beliefs reinforced by fellow ingroup members. As noted earlier, migrants face

social barriers to joining groups which could increase the risk of echo chamber effects and subsequent paranoia.

It should also be noted that simply joining as many groups as possible following migration is unlikely to be sufficient to prevent psychotic symptoms. For social identities to promote health, they must encourage positive cognitions and behavior. It has been shown, for example, that the extent to which substance users disidentified with their substance user category in favor of a "recoveree" identity predicted better outcomes during an identity intervention program (Dingle, Stark, Cruwys, & Best, 2014). This work highlights the importance of identity content and valence in maintaining good mental health. If people maintain maladaptive or destructive identities, then these identities could exacerbate rather than improve symptomology, as appears to happen when patients experience self-stigma (Corrigan et al. 2006; Vass et al. 2015).

Cross-cultural effects will also need to be incorporated into future study designs because the way that people respond to cultural change and construct their social identities may vary across cultures (Feitosa, Salas, & Salazar, 2012). It will thus be important to not assume that migrants are a single, homogenous population. For example, people migrating from collectivist cultures (which emphasize group goals over individual goals) to individualist cultures (which emphasize individual goals and uniqueness) may face different identity challenges compared to people moving in the opposite direction. It will be of interest to compare psychosis risk between these two migration pathways.

Future research must also consider alternative causal pathways that might link identification and psychosis. In this article, we have outlined some reasons why we believe that weakened social identities would increase the risk of psychosis and especially paranoid symptoms. However, it is possible that some characteristics of individuals who later become psychotic make it more difficult for them to form adequate social identities in the first place. For example, there is considerable evidence that low IQ in children increases their vulnerability to psychosis (Davidson et al. 2014), especially if they live in complex urban environments, which may also make establishing adequate social identities challenging (Weiser et al. 2007). People who are at very high risk of psychosis, and who are experiencing the prodromal symptoms that typically precede a first episode of illness, may also lack the social cognitive skills that are required to maintain social identities such as "theory of mind" skills (Bora & Pantelis, 2013). It should be further acknowledged that a first psychotic episode may also impact on identity. In particular, it is possible that because of the stigma and social difficulties associated with a mental illness diagnosis, people with psychotic symptoms may be less likely to seek out social connections and group membership. In sum, our proposed pathway could be causally reversed or, more likely, the relationship between social identity and psychosis will prove to be bidirectional and

dynamic, varying according to the stage of illness. In order to develop a full understanding of the relationship between social identity and psychosis, it will be necessary to compliment cross-sectional work with longitudinal designs and experimental techniques (e.g. examining identity interventions), as well as provide robust theoretical arguments as we have attempted to do here.

Finally, it is our hope that research in this area informs prevention-based policies and programs that will reduce psychosis rates in vulnerable migrant populations. One encouraging avenue for future investigation is the Groups 4 Health (G4H) program developed by C. Haslam, Cruwys, S. A. Haslam, and Dingle (2016). The G4H intervention encourages the development and maintenance of positive identities through group-based therapy sessions, and preliminary findings suggests that the program reduces depression, anxiety, and loneliness by cultivating identification (C. Haslam, Cruwys, S. A. Haslam, Dingle, & Xue-Ling Chang, 2016). Assessing this program in diverse populations and adapting it to accommodate new migrants and/or people experiencing psychotic symptoms may represent a viable intervention strategy, particularly if combined with broader policies that encourage cultural inclusiveness and social connection.

CONCLUSIONS

In the present article, we propose that researchers examine psychosis in migrant populations through a social identity lens. The process of migration involves transitioning to an unfamiliar social, cultural, and physical environment, combined with additional stressors such as discrimination and social isolation. Psychotic symptoms are exacerbated among second-generation migrants who may be at greater risk of social marginalization and disidentification, and this lack of identification may lead to psychosis triggers such as low self-esteem, external locus of control, maladaptive attribution styles, and echo chamber effects. There is evidence that being surrounded by ingroup members reduces the risk of psychosis among migrants, and thus, maintaining identities and fostering new identities may help to reduce this risk. It will be important to identify in future research whether it is identity composition within neighborhoods, identity continuity, identity strength, or identity quantity that best predicts psychotic symptoms. Social identity development may be facilitated by positive contact with new outgroups and by maintaining cultural ties with ingroups; however, identification with current or original cultures may backfire and lead to social disconnection when combined with perceived discrimination or isolation. It is our aim that the present article will stimulate research on psychosis using SIAs, help to explain the elevated risk of psychosis in migrant populations, and guide policies to address this problem.

ACKNOWLEDGEMENTS

This work was supported by the National Institute for Health Research, Collaboration for Leadership in Applied Health Research and Care North West Coast (NIHR CLAHRC NWC). The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR, or the Department of Health.

REFERENCES

Anglin, D. M., Lui, F., Espinosa, A., Tikhonov, A., & Ellman, L. (2018). Ethnic identity, racial discrimination and attenuated psychotic symptoms in an urban population of emerging adults. *Early intervention in psychiatry*, *12*(3), 380-390.

Apfelbaum, E. P., & Sommers, S. R. (2009). Liberating effects of losing executive control. Psychological Science, 20, 139–143.

Barlow, F. K., Louis, W. R., & Terry, D. J. (2010). Minority report: Social identity, cognitions of rejection and intergroup anxiety predicting prejudice from one racially marginalized group towards another. European Journal of Social Psychology, 40(5), 805–818.

Beards, S., Gayer-Anderson, C., Borges, S., Dewey, M. E., Fisher, H. L., & Morgan, C. (2013). Life events and psychosis: A review and meta-analysis. Schizophrenia Bulletin, 39(4), 740–747.

Bebbington, P. E., Hurry, J., & Tennant, C. (1981). Psychiatric disorders in selected immigrant groups in Camberwell. Social Psychiatry, 16(1), 43–51.

Bebbington, P. E., McBride, O., Steel, C., Kuipers, E., Radovanovič, M., Brugha, T., … Freeman, D. (2013). The structure of paranoia in the general population. The British Journal of Psychiatry, 202(6), 419–427.

Bentall, R. P. (2004). Madness explained: Psychosis and human nature. London, England: Penguin UK.

Bentall, R. P., Corcoran, R., Howard, R., Blackwood, N., & Kinderman, P. (2001). Persecutory delusions: A review and theoretical integration. Clinical Psychology Review, 21(8), 1143–1192.

Bentall, R.P., Rouse, G., Kinderman, P., Blackwood, N., Howard, R., Moore, R., … Corcoran, R. (2008). Delusions of paranoia in schizophrenia spectrum disorders and depression: The transdiagnostic role of expectations of negative events and negative self-esteem. The Journal of nervous and mental disease, 196(5), 375–383.

Bentall, R. P., de Sousa, P., Varese, F., Wickham, S., Sitko, K., Haarmans, M., & Read, J. (2014). From adversity to psychosis: Pathways and mechanisms from specific adversities to specific symptoms. Social Psychiatry and Psychiatric Epidemiology, 49(7), 1011–1022.

Bentall, R. P., Wickham, S., Shevlin, M., & Varese, F. (2012). Do specific early-life adversities lead to specific symptoms of psychosis? A study from the 2007 the Adult Psychiatric Morbidity Survey. Schizophrenia Bulletin, 38(4), 734–740.

Berry, J. W. (1999). Intercultural relations in plural societies. Canadian Psychology/Psychologie Canadienne, 40(1), 12.

Berry, J. W., & Kim, U. (1998). Acculturation and mental health. In P. Dasen, J. W. Berry, & N. Sartorius (Eds.), Health and cross-cultural psychology: Towards application (Vol. 12). (pp. 207–236). London: Sage.

Berry, J. W., Kim, U., Minde, T., & Mok, D. (1987). Comparative studies of acculturative stress. International Migration Review, 21(3), 491–511.

Bhugra, D. (2004). Migration, distress and cultural identity. British Medical Bulletin, 69(1), 129–141.

Bhugra, D., Leff, J., Mallett, R., Der, G., Corridan, B., & Rudge, S. (1997). Incidence and outcome of schizophrenia in whites, African-Caribbeans and Asians in London. Psychological Medicine, 27(04), 791–798.

Bora, E., & Pantelis, C. (2013). Theory of mind impairments in first-episode psychosis, individuals at ultra-high risk for psychosis and in first-degree relatives of schizophrenia: Systematic review and meta-analysis. Schizophrenia Research, 144(1), 31–36.

Bowlby, J. (1969). Attachment and loss: Attachment (vol. 1). New York: Basic Books.

Bowlby, J. (1973). Attachment and loss: Separation: Anxiety and anger (Vol. 2). New York: Basic Books.

Boydell, J., Van Os, J., McKenzie, K., Allardyce, J., Goel, R., McCreadie, R. G., & Murray, R. M. (2001). Incidence of schizophrenia in ethnic minorities in London: Ecological study into interactions with environment. BMJ, 323 (7325), 1323–1336.

Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimination among African Americans: Implications for group identification and well-being. Journal of personality and social psychology, 77(1), 135.

Cantor-Graae, E., & Selten, J.-P. (2014). Schizophrenia and migration: A meta-analysis and review. American Journal of Psychiatry, 162(1), 12–24.

Ciufolini, S., Morgan, C., Morgan, K., Fearon, P., Boydell, J., Hutchinson, G., … Jones, P. B. (2015). Self-esteem and self-agency in first episode psychosis: Ethnic variation and relationship with clinical presentation. Psychiatry Research, 227(2), 213–218.

Claridge, G. (1990). Can a disease model of schizophrenia survive? Reconstructing Schizophrenia, 157–183.

Cohen, S., Frank, E., Doyle, W. J., Skoner, D. P., Rabin, B. S., & Gwaltney, J. M.Jr. (1998). Types of stressors that increase susceptibility to the common cold in healthy adults. Health Psychology, 17(3), 214.

Cole, S. W., Kemeny, M. E., & Taylor, S. E. (1997). Social identity and physical health: Accelerated HIV progression in rejection-sensitive gay men. Journal of personality and social psychology, 72(2), 320.

Corrigan, P. W., Watson, A. C., & Barr, L. (2006). The self-stigma of mental illness: Implications for self-esteem and self-efficacy. Journal of Social and Clinical Psychology, 25(8), 875–884.

Cruwys, T., Dingle, G. A., Haslam, C., Haslam, S. A., Jetten, J., & Morton, T. A. (2013). Social group memberships protect against future depression, alleviate depression symptoms and prevent depression relapse. Social Science & Medicine, 98, 179–186.

Cruwys, T., South, E. I., Greenaway, K. H., & Haslam, S. A. (2014). Social identity reduces depression by fostering positive attributions. Social Psychological and Personality Science, 6(1). DOI:10.1177/1948550614543309.

Davidson, M., Reichenberg, A., Rabinowitz, J., Weiser, M., Kaplan, Z., & Mark, M. (2014). Behavioral and intellectual markers for schizophrenia in apparently healthy male adolescents. American Journal of Psychiatry, 156(9), 1328–1335.

Dingle, G. A., Stark, C., Cruwys, T., & Best, D. (2014). Breaking good: Breaking ties with social groups may be good for recovery from substance misuse. British Journal of Social Psychology, 54(2), 236–254.

Eitinger, L. (1959). The incidence of mental disease among refugees in Norway. Journal of Mental Science, 105(439), 326–338.

Fearon, P., Kirkbride, J. B., Morgan, C., Dazzan, P., Morgan, K., Lloyd, T., … Holloway, J. (2006). Incidence of schizophrenia and other psychoses in ethnic minority groups: Results from the MRC AESOP Study. Psychological Medicine, 36(11), 1541–1550.

Feitosa, J., Salas, E., & Salazar, M. R. (2012). Social identity: Clarifying its dimensions across cultures. Psihologijske Teme, 21(3), 527–548.

Fowler, D., Freeman, D., Smith, B., Kuipers, E., Bebbington, P., Bashforth, H., … Dunn, G. (2006). The Brief Core Schema Scales (BCSS): Psychometric properties and associations with paranoia and grandiosity in non-clinical and psychosis samples. Psychological Medicine, 36(06), 749–759.

Fowler, D., Hodgekins, J., Garety, P., Freeman, D., Kuipers, E., Dunn, G., … Bebbington, P. E. (2012). Negative cognition, depressed mood, and paranoia: A longitudinal pathway analysis using structural equation modeling. Schizophrenia Bulletin, 38(5), 1063–1073.

Freeman, D., Garety, P. A., Bebbington, P. E., Smith, B., Rollinson, R., Fowler, D., … Dunn, G. (2005). Psychological investigation of the structure of paranoia in a non-clinical population. The British Journal of Psychiatry, 186(5), 427–435.

Freeman, D., Garety, P., Kuipers, E., Colbert, S., Jolley, S., Fowler, D., … Bebbington, P. (2006). Delusions and decision-making style: Use of the Need for Closure Scale. Behavior Research and Therapy, 44(8), 1147–1158.

Freeman, D., Garety, P. A., Kuipers, E., Fowler, D., & Bebbington, P. E. (2002). A cognitive model of persecutory delusions. British Journal of Clinical Psychology, 41(4), 331–347.

Greenaway, K. H., Haslam, S. A., Cruwys, T., Branscombe, N. R., Ysseldyk, R., & Heldreth, C. (2015). From “we” to “me”: Group identification enhances perceived personal control with consequences for health and well-being.

Halpern, D., & Nazroo, J. (2000). The ethnic density effect: Results from a national community survey of England and Wales. International Journal of Social Psychiatry, 46(1), 34–46.

Haslam, C., Cruwys, T., Haslam, S. A., & Dingle, G. A. (2016). Groups for health: Therapist manual. Centre for Health Outcomes, Innovation and Clinical Education. (Vol. 194). (pp. 188–195). Brisbane: University of Queensland.

Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G. A., & Xue-Ling Chang, M. (2016). Groups 4 Health: Evidence that a socialidentity intervention that builds and strengthens social group membership improves mental health. Journal of Affective Disorders, 194, 188–195.

Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: An emerging agenda for applied psychology. Applied Psychology, 58(1), 1–23.

Haslam, S. A., O'Brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. British Journal of Social Psychology, 44(3), 355–370.

Hitch, P., & Rack, P. (1980). Mental illness among Polish and Russian refugees in Bradford. The British Journal of Psychiatry, 137(3), 206–211.

Hogg, M. A. (2000). Subjective uncertainty reduction through self-categorization: A motivational theory of social identity processes. European Review of Social Psychology, 11(1), 223–255.

Hornsey, M. J. (2008). Social identity theory and self-categorization theory: A historical review. Social and Personality Psychology Compass, 2(1), 204–222.

Hornsey, M. J., & Hogg, M. A. (2000). Assimilation and diversity: An integrative model of subgroup relations. Personality and Social Psychology Review, 4(2), 143–156.

Hunt, N., Adams, S., Coxhead, N., Sayer, H., Murray, C., & Silverstone, T. (1993). The incidence of mania in two areas in the United Kingdom. Social Psychiatry and Psychiatric Epidemiology, 28(6), 281–284.

Iyer, A., Jetten, J., & Tsivrikos, D. (2008). Torn between identities: Predictors of adjustment to identity change. In F. Sani (Ed.), Self-continuity: Individual and collective perspectives (pp. 187–197). New York: Psychology Press.

Iyer, A., Jetten, J., Tsivrikos, D., Postmes, T., & Haslam, S. A. (2009). The more (and the more compatible) the merrier: Multiple group

memberships and identity compatibility as predictors of adjustment after life transitions. British Journal of Social Psychology, 48(4), 707–733.

Jetten, J., Branscombe, N. R., Haslam, S. A., Haslam, C., Cruwys, T., Jones, J. M., … Murphy, S. (2014). Having a lot of a good thing: Multiple important group memberships as a source of self-esteem. PloS One, 10(5), e0124609–e0124609.

Jetten, J., Haslam, C., & Alexander, S. H. (2012). The social cure: Identity, health and well-being. New York: Psychology Press.

Jetten J., Branscombe N. R., Haslam S. A., Haslam C., Cruwys T., Jones J. M., … Thai A. (2015). Having a lot of a good thing: Multiple important group memberships as a source of self-esteem. PloS one, 10(5), e0124609.

Kaney, S., & Bentall, R. P. (1989). Persecutory delusions and attributional style. British Journal of Medical Psychology, 62(2), 191–198.

Kinderman, P., & Bentall, R. P. (1996). A new measure of causal locus: The internal, personal and situational attributions questionnaire. Personality and Individual Differences, 20(2), 261–264.

King, M., Coker, E., Leavey, G., Hoare, A., & Johnson-Sabine, E. (1994). Incidence of psychotic illness in London: Comparison of ethnic groups. BMJ, 309(6962), 1115–1119.

Kirkbride, J., Barker, D., Cowden, F., Stamps, R., Yang, M., Jones, P., & Coid, J. (2008). Psychoses, ethnicity and socio-economic status. The British Journal of Psychiatry, 193(1), 18–24.

Korver-Nieberg, N., Berry, K., Meijer, C., de Haan, L., & Ponizovsky, A. M. (2015). Associations between attachment and psychopathology dimensions in a large sample of patients with psychosis. Psychiatry Research, 228(1), 83–88.

Koser, K. (2007). International migration: A very short introduction. Oxford: Oxford University Press.

Kramer, R. M., & Wei, J. (1999). Social uncertainty and the problem of trust in social groups: The social self in doubt. The Psychology of The Social Self, 145–168.

Lasar, M. (1997). Cognitive evaluation of action in chronic schizophrenia-Locus of control beliefs in an inpatient group. Psychologische Beitrage, 39, 297–311.

Laverie, D. A. (1998). Motivations for ongoing participation in a fitness activity. Leisure Sciences, 20(4), 277–302.

Leff, J., Fischer, M., & Bertelsen, A. (1976). A cross-national epidemiological study of mania. The British Journal of Psychiatry, 129(5), 428–442.

Lloyd, T., Kennedy, N., Fearon, P., Kirkbride, J., Mallett, R., Leff, J., … Morgan, K. (2005). Incidence of bipolar affective disorder in three UK cities. The British Journal of Psychiatry, 186(2), 126–131.

McIntyre, J. C., Constable, M. D., & Barlow, F. K. (2015). Property and prejudice: How racial attitudes and social-evaluative concerns shape property appraisals. European Journal of Social Psychology, 45(6), 716–727. DOI:10.1002/ ejsp.2121.

Morgan, C., Charalambides, M., Hutchinson, G., & Murray, R. M. (2010). Migration, ethnicity, and psychosis: Toward a sociodevelopmental model. Schizophrenia Bulletin, sbq051.

Moutoussis, M., Williams, J., Dayan, P., & Bentall, R. P. (2007). Persecutory delusions and the conditioned avoidance paradigm: Towards an integration of the psychology and biology of paranoia. Cognitive Neuropsychiatry, 12(6), 495–510.

Phinney, J. S., & Chavira, V. (1992). Ethnic identity and self-esteem: An exploratory longitudinal study. Journal of adolescence, 15(3), 271–281.

Pickering, L., Simpson, J., & Bentall, R. P. (2008). Insecure attachment predicts proneness to paranoia but not hallucinations. Personality and Individual Differences, 44(5), 1212–1224.

Price, J., & Wolfers, J. (2010). Racial discrimination among NBA referees. The Quarterly Journal of Economics, 125(4), 1859–1887.

Rachlinski, J. J., Johnson, S. L., Wistrich, A. J., & Guthrie, C. (2009). Does unconscious racial bias affect trial judges? Notre Dame Law Review, 84(3), 09–11.

Rosenbaum, M., & Hadari, D. (1985). Personal efficacy, external locus of control, and perceived contingency of parental reinforcement among depressed, paranoid, and normal subjects. Journal of Personality and Social Psychology, 49(2), 539.

Sam, D. L., & Berry, J. W. (2010). Acculturation when individuals and groups of different cultural backgrounds meet. Perspectives on Psychological Science, 5(4), 472–481.

Sands, E. A., & Berry, J. W. (1993). Acculturation and mental health among Greek-Canadians in Toronto. Canadian Journal of Community Mental Health, 12(2), 117–124.

Sani, F., Magrin, M. E., Scrignaro, M., & McCollum, R. (2010). In-group identification mediates the effects of subjective in-group status on mental health. British Journal of Social Psychology, 49(4), 883–893.

Schmitt, M. T., Spears, R., & Branscombe, N. R. (2003). Constructing a minority group identity out of shared rejection: The case of international students. European Journal of Social Psychology, 33(1), 1–12.

Sharpley, M. S., Hutchinson, G., Murray, R. M., & McKenzie, K. (2001). Understanding the excess of psychosis among the African-Caribbean population in England review of current hypotheses. The British Journal of Psychiatry, 178(40), s60–s68.

Shelton, J. N., Richeson, J. A., Salvatore, J., & Trawalter, S. (2005). Ironic effects of racial bias during interracial interactions. Psychological Science, 16(5), 397–402.

Sitko, K., Bentall, R. P., Shevlin, M., & Sellwood, W. (2014). Associations between specific psychotic symptoms and specific childhood adversities are mediated by attachment styles: An analysis of the National Comorbidity Survey. Psychiatry Research, 217(3), 202–209.

Tajfel, H. (1972). Experiments in a vacuum Human Groups and Social Categories (pp. 17–40). Cambridge: Cambridge University Press.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. The Social Psychology of Intergroup Relations, 33 (47), 74.

Tajfel, H., Billig, M. G., Bundy, R. P., & Flament, C. (1971). Social categorization and intergroup behaviour. European Journal of Social Psychology, 1(2), 149–178.

Tamminga, C. A., Pearlson, G., Keshavan, M., Sweeney, J., Clementz, B., & Thaker, G. (2014). Bipolar and schizophrenia network for intermediate phenotypes: Outcomes across the psychosis continuum. Schizophrenia Bulletin, 40(Suppl 2), s131–s137.

Tateyama, M., Asai, M., Hashimoto, M., Bartels, M., & Kasper, S. (1998). Transcultural study of schizophrenic delusions. Psychopathology, 31(2), 59–68.

Thewissen, V., Bentall, R. P., Lecomte, T., van Os, J., & Myin-Germeys, I. (2008). Fluctuations in self-esteem and paranoia in the context of daily life. Journal of Abnormal Psychology, 117(1), 143.

Thoits, P. A. (1983). Multiple identities and psychological well-being: A reformulation and test of the social isolation hypothesis. American Sociological Review, 174–187.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). Rediscovering the social group: A self-categorization theory. Cambridge, MA, USA: Basil Blackwell.

Turner, J. C., Oakes, P. J., Haslam, S. A., & McGarty, C. (1994). Self and collective: Cognition and social context. Personality and Social Psychology Bulletin, 20, 454–454.

Umaña-Taylor, A. J. (2004). Ethnic identity and self-esteem: Examining the role of social context. Journal of Adolescence, 27(2), 139–146.

Van Os, J., & Kapur, S. (2009). Psychosis: From diagnosis to syndrome. Nederlands Tijdschrift Voor Geneeskunde, 154, A1874–A1874.

Van Os, J., Castle, D., Takei, N., Der, G., & Murray, R. (1996). Psychotic illness in ethnic minorities: Clarification from the 1991 census. Psychological Medicine, 26(01), 203–208.

Van Os, J., Hanssen, M., Bijl, R. V., & Ravelli, A. (2000). Strauss (1969) revisited: A psychosis continuum in the general population? Schizophrenia Research, 45(1), 11–20.

Varese, F., Smeets, F., Drukker, M., Lieverse, R., Lataster, T., Viechtbauer, W., … Bentall, R. P. (2012). Childhood adversities increase the risk of psychosis: A meta-analysis of patient-control, prospective- and cross-sectional cohort studies. Schizophrenia Bulletin, 38(4), 661–671.

Vass, V., Morrison, A. P., Law, H., Dudley, J., Taylor, P., Bennett, K. M., & Bentall, R. P. (2015). How stigma impacts on people with psychosis: The mediating effect of self-esteem and hopelessness on subjective recovery and psychotic experiences. Psychiatry Research, 230(2), 487–495.

Veling, W., Selten, J.-P., Susser, E., Laan, W., Mackenbach, J. P., & Hoek, H. W. (2007). Discrimination and the incidence of

psychotic disorders among ethnic minorities in the Netherlands. International Journal of Epidemiology, 36(4), 761–768.

Veling, W., Susser, E., Jim van Os, M. D., Mackenbach, J. P., Selten, J. P., & Hoek, H. W. (2008). Ethnic density of neighborhoods and incidence of psychotic disorders among immigrants. American Journal of Psychiatry.

Wegge, J., Van Dick, R., Fisher, G. K., Wecking, C., & Moltzen, K. (2006). Work motivation, organisational identification, and well-being in call centre work. Work & Stress, 20(1), 60–83.

Weiser, M., Van Os, J., Reichenberg, A., Rabinowitz, J., Nahon, D., Kravitz, E., … Noy, S. (2007). Social and cognitive functioning, urbanicity and risk for schizophrenia. The British Journal of Psychiatry, 191(4), 320–324.

Westermeyer, J. (1989). Paranoid symptoms and disorders among 100 among refugees: A longitudinal study. Acta Psychiatrica Scandinavica, 80(1), 47–59.

Wickham, S., Sitko, K., & Bentall, R. P. (2015). Insecure attachment is associated with paranoia but not hallucinations in psychotic patients: The mediating role of negative self-esteem. Psychological Medicine, 45(07), 1495–1507.

Wicks, S., Hjern, A., & Dalman, C. (2014). Social risk or genetic liability for psychosis? A study of children born in Sweden and reared by adoptive parents. American Journal of Psychiatry, 167(10), 1240–1246.

Wrench, J., & Solomos, J. (1993). Racism and migration in Western Europe. Oxford: Berg.

Yeh, C. J. (2003). Age, acculturation, cultural adjustment, and mental health symptoms of Chinese, Korean, and Japanese immigrant youths. Cultural Diversity and Ethnic Minority Psychology, 9(1), 34–48.

Zammit, S., Lewis, G., Rasbash, J., Dalman, C., Gustafsson, J.-E., & Allebeck, P. (2010). Individuals, schools, and neighborhood: A multilevel longitudinal study of variation in incidence of psychotic disorders. Archives of General Psychiatry, 67(9), 914–922.

Appendix C: Home is where you hang your hat study

Journal of Social and Clinical Psychology, Vol. 37, No. 3, 2018, pp. 159-181

HOME IS WHERE YOU HANG YOUR HAT:

HOST TOWN IDENTITY, BUT NOT HOMETOWN IDENTITY, PROTECTS AGAINST MENTAL HEALTH SYMPTOMS ASSOCIATED WITH FINANCIAL STRESS

A. ELAHI, J. C. MCINTYRE, C. HAMPSON, AND H. J. BODYCOTE
University of Liverpool, England

K. SITKO
University of Leeds, England

R. G. WHITE
University of Liverpool, England

R. P. BENTALL
University of Sheffield, England

Debt and financial insecurity are associated with stress, low self-worth, and poor health. Joining and identifying with social groups (social identification) promotes better health and higher self-esteem. Here, we examined whether identifying with one's local neighborhood protected people from developing mental health symptoms associated with financial stress. We analyzed data from a general population survey (Study 1, $N = 4319$) and a student mental health survey (Study 2, $N = 612$) conducted in the North West of England. We administered measures of financial stress, self-esteem, neighborhood identity, and mental health, and conducted moderated mediation analyses to test our predictions. Study 1 (population survey) demonstrated that stronger identification with one's local neighborhood attenuated the adverse effects of financial stress on self-esteem and subsequent mental health. Study 2 (student survey) showed that strong host town identities buffered students from mental health symptoms related to financial stress. Strong hometown identities, however, showed no buffering effect. The findings suggest that one way financial stress impacts mental health is by eroding self-esteem. Identifying with one's current place of residence appears to disrupt this pathway, while identifying with one's previous place of residence does not provide the same psychological protection.

Keywords: identity, financial stress, self-esteem, mental health symptoms

The need to belong to groups has been described as a fundamental human drive (Baumeister & Leary, 1995). Incorporating social groups into one's sense of self, through the process of social identification, has been shown to protect people against poor mental health and low well-being (Haslam, Jetten, & Waghorn, 2009). There is also evidence to suggest that identifying with social groups reduces stress and shapes the way people appraise stressful situations (Haslam, O'brien, Jetten, Vormedal, & Penna, 2005). Identification may thus provide psychological resilience during times of stress and adversity, such as unemployment or rising debt. Indeed, stress and associated mental health issues stemming from economic deprivation represent a global problem (Lund et al., 2010) that is likely to worsen if economic inequalities persist. It is therefore imperative that we understand the processes that lead from financial stress to mental health difficulties, and how we can disrupt this pathway to prevent mental illness.

According to Lazarus and Folkman (1984), stress can be conceptualized as an appraisal of harm, threat, or challenge. Research has reported consistent associations between stressful life experiences and poor mental health (Meyer, 2003; Williams, Yu, Jackson, & Anderson, 1997), and the effects can be severe enough to lead to depression, suicidal ideation, and psychosis (Ciarrochi, Deane, & Anderson, 2002; Hovey & King, 1996; Richardson, Elliot, & Roberts, 2013; Wilburn & Smith, 2005). At the present time, there is good reason for concern about the prevalence and impact of financial stress. Indeed, despite more cautious borrowing since the 2008 financial crises in the U.S. and Europe, global private liabilities have continued to increase and totalled EUR 35.2 trillion in 2014 (Brandmeir, Grimm, Heise, & Holzhausen, 2015). The negative health consequences of this kind of unsecured debt have been well documented (see Richardson et al., 2013). The factors that explain and mitigate these effects, however, are not well understood. In the present research, we examine whether identifying with one's local neighborhood protects against the adverse effects of financial stress on mental health. Further, we test whether hometown neighborhood identities provide similar psychological resilience during financial strain.

THE IMPACT OF FINANCIAL STRESS ON SELF-ESTEEM AND MENTAL HEALTH

It has been suggested that self-esteem represents a disparity between the actual and ideal self (Block & Robins, 1993; Harter, 1990), which is reflected in an individual's positive or negative self-evaluations (Rosenberg, Schooler, Schoenbach, & Rosenberg, 1995). Past research has identified links between low self-esteem and poor mental health, including anxiety and depression (Brandmeir et al., 2015). For example, adolescents with low self-esteem suffer from worse mental health symptoms compared with their counterparts with higher self-esteem (Roberts, Gotlib, & Kassel, 1996). Moreover, in studies examining symptoms of psychosis, patients with paranoid symptoms (persecutory beliefs) have been found to have low (Wickham, Sitko, & Bentall, 2015) and highly unstable (Thewissen, Bentall, Lecomte, van Os, & Myin-Germeys, 2008) self-esteem. These negative beliefs about the self-maintain paranoia over time (Fowler et al., 2011) and predict poorer recovery from symptoms (Trzesniewski et al., 2006). Critically, fluctuations in self-esteem have been shown to

precede episodes of paranoia, suggesting a potential causal pathway from low self-esteem to poor mental health (Thewissen et al., 2008).

It is plausible that some of the effects of financial stress on mental health are mediated by the deterioration of self-esteem. The evidence relating to debt and self-esteem has been inconsistent. Some studies suggest that absolute level of debt may be unrelated to self-esteem (Crocker & Luhtanen, 2003; Pinto, Mansfield, & Parente, 2004). Dwyer, McCloud, and Hodson (2011) suggest that debt increases self-esteem because debt is often the result of a positive investment. However, stress associated with debt is more consistently associated with lower self-worth (Diener, & Diener, 1995; Krause, Jay, & Liang, 1991; Mayhew, & Lempers, 1998). In a prospective study of veterans aged between 35 and 60 years, self-esteem and mental health was measured in groups of employed and unemployed men, respectively (Linn, Sandifer, & Stein, 1985). Unemployment was found to be associated with higher levels of depression and anxiety; however, wide variation in the self-esteem of unemployed participants suggested that some men were more resilient to self-esteem deficits following unemployment. The study we undertook sought to determine whether social identification might play a part in promoting reliance to the potential impact of financial stress.

SOCIAL IDENTIFICATION AS A PROTECTIVE FACTOR

The term social identity refers to the sense of self that develops when thinking about oneself as part of a social group (Tajfel, 1972). When people feel connected to positive and cohesive social groups, and incorporate those groups into their identity, it provides a sense of purpose and meaning (Dingle, Brander, Ballantyne, & Baker, 2013). Research on the effects of social identification on health has increased exponentially over the last decade, and findings suggest that joining and identifying with groups is associated with better physical health and improved well-being (Haslam, Jetten, & Waghorn, 2009) and cognitive functioning (Haslam, Cruwys, Milne, Kan, & Haslam, 2016), as well as a lower risk of depression (Cruwys et al., 2013; Cruwys, Haslam, Dingle, Haslam, & Jetten, 2014), and paranoia (McIntyre, Wickham, Barr, & Bentall, 2017; Sani, Wakefield, Herrera, & Zeybek, 2017).

It is likely that the positive effects of identity on mental health are the result of the boost to self-esteem experienced by high identifyers. As originally proposed by Tajfel and Turner (1979), being part of a group that is personally important provides an individual with a more positive sense of self. Consistent with this assertion, in a study comprising African American participants it was found that identifying with groups that are valued increased both personal and collective self-esteem (Branscombe, Schmitt, & Harvey, 1999). Similar results have been observed among older adults, children, and homeless people (Jetten et al., 2015), as well as in a longitudinal study assessing students' self-esteem (Iyer, Jetten, Tsivrikos, Postmes, & Haslam, 2009). Thus, past research suggests that social identities buffer against mental health difficulties by fostering self-esteem.

Whereas previous research has explored the relationships that aspects of health and wellbeing have with the extent to which people identify with groups such as families,

sporting teams, workplaces, recreation groups, and universities (see Cruwys et al., 2014), comparatively little research has focused on the impact of location-based identities on health and wellbeing. With substantial sections of the population lacking financial resources and confidence to join recreation groups, and/or having no access to occupational or educational settings, neighborhood identification may be one form of society identify that people retain access to.

THE PRESENT RESEARCH

Here, we aimed to assess whether neighborhood identification attenuated the negative effects of financial stress on self-esteem and mental health. We tested our hypothesis using two existing datasets. The first was a large household health survey conducted in North West England (Study 1), and the second was a student mental health survey conducted in Universities in England and Wales (Study 2). Given the reviewed evidence that social identification improves mental health by bolstering self-esteem, and that financial stress is associated with negative self-concepts and poor mental health, we predicted that strong neigborhood identification would attenuate the negative impact of financial stress on self-esteem and subsequent mental health.

STUDY 1 DATA AND METHODS

PARTICIPANTS AND DESIGN

The survey was conducted as part of the National Institute of Health Research Collaboration for Leadership in Applied Health Research and Care North West Coast (NIHR CLAHRC NWC). In conjunction with local authorities, NHS partners and public advisors, we designed a comprehensive health and wellbeing survey. A total of 4,319 participants from households across the North West of England were recruited between August 2015 and January 2016. The sample consisted of 1,854 (43%) men and 2,465 (57%) women whose ages ranged from 18 to 95 years (M = 49.12, SD = 19.13). The adjusted response rate (excluding addresses where no one was home) for the study was 61%. The majority of participants (89%) indicated that they were of White European ethnic background. All respondents were reimbursed with a £10 (U.S. $14) voucher in return for their participation.

SAMPLING PROCEDURE

The NIHR CLAHRC NWC survey was conducted to provide a baseline assessment to support the development and evaluation of area-based interventions that promote health and wellbeing. The sampling procedure reflected this objective. A random probability sample was taken from 10 high deprivation intervention areas, 10 matched comparator high deprivation areas, and 8 low deprivation areas. Three times as many addresses as was required to achieve the target sample for each area were randomly selected using the postcode address file. Sample targets were 200 for the intervention areas, 150 for the high deprivation comparator areas, and 100 for the low deprivation areas. These sample targets were met within a 5% tolerance (see McIntyre et al., 2017 for a more detailed description of the sampling procedure).

MEASURES

Financial Stress. Financial stress was measured with an item sourced from the Wealth and Assets Survey (WAS; Office for National Statistics, 2016). Participants were asked to indicate on a three-point scale how well their household was managing financially these days. Response options were: 1 = doing well, 2 = getting by, 3 = struggling.

Neighborhood Identity. Neighborhood identity was measured using a single-item from the UK Community Life Survey (2015). Participants indicated on a four-point scale the extent to which they felt they belonged to their immediate neighborhood, with neighborhood defined to participants as your street or block. Response options ranged from 1 (not at all strongly) to 4 (very strongly). The item taps into the sense of group belonging, which has been implicated in the centrality (Sellers, Smith, Shelton, Rowley, & Chavous, 1998), satisfaction (Luhtanen & Crocker, 1992) and solidarity (Ellemers, Kortekaas, & Ouwerkerk, 1999) components of social identification.

Self-Esteem. Participants completed the single-item self-esteem scale (Robins, Hendin, & Trzesniewski, 2001). Participants indicated, on a seven-point scale from 1 (not very true of me) to 7 (very true of me), how true or untrue the statement "I have high self-esteem" was for them.

Paranoia. Paranoia was assessed with five items taken from the persecution subscale of the persecution and deservedness scale (PaDS; Melo, Corcoran, Shryane, & Bentall, 2009). Participants rated their agreement on a five-point scale with statements such as "I'm often suspicious of other people's intentions towards me" and "You should only trust yourself." Response options ranged from 1 (strongly disagree) to 5 (strongly agree). The level of internal consistency for the scale was satisfactory (α = .84).

Depression. Depression was assessed with the nine-item Patient Health Questionnaire (PHQ-9; Kroenke & Spitzer, 2002). Participants were asked to indicate how often they had been bothered by problems such as "feeling down, depressed, or hopeless" and "thoughts that you would be better off dead, or hurting yourself in some way" over the last two weeks. Response options ranged from 1 (not at all) to 4 (nearly every day), α = .90.

Anxiety. The Generalized Anxiety Disorder-7 (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006) is a seven-item instrument that assesses the frequency of events such as "worrying too much about different things" and "being so restless that it is hard to sit still." Respondents indicated the frequency of each symptom over the past two weeks on a scale ranging from 0 (not all) to 3 (nearly every day), α = .93.

Demographic Variables. Participants were asked to indicate their age (1 to 10 in age bands), sex (coded as 1 = male, 2 = female), ethnicity (coded as 0 = UK/White, 1 = Black and ethnic minority; due to the large proportion of White respondents), employment status (coded as 0 = not employed, 1 = employed), and education level (coded as 0 = no degree, 1 = degree). We also controlled for the sampling of high (−1) and low (1) deprivation neighborhoods.

STUDY 1 RESULTS

PRELIMINARY ANALYSES

Means, standard deviations, and zero-order correlations are presented in Supplementary Table 1 (Appendix A). Financial stress was associated with lower self-esteem and higher scores on all three mental health symptoms (paranoia, depression, and anxiety). Neighborhood identity was associated with higher self-esteem and lower mental health symptoms. Paranoia was moderately associated with higher depression and anxiety, and depression and anxiety were highly positively correlated with each other. All three mental health symptoms were associated with lower self-esteem.

Given the high comorbidity of symptoms associated with depressive and psychotic disorders and the high correlation between depression and anxiety observed in this study, we conducted a principle component analysis (PCA) using item scores of the scales to test whether symptoms were best represented by separate factors.

We specified a rotated component solution (varimax rotation) with extraction restricted to eigenvalues >1. The rotated component matrix and scree plot indicated three distinct components that mapped identically onto the pre-existing symptom scales of anxiety (accounting for 49% of the variance), depression (accounting for 9% of the variance), and paranoia (accounting for 5% of the variance). Thus, each symptom was examined as a separate dependent variable.

MODERATED MEDIATION ANALYSES

As shown in Table 1, we conducted three moderated mediation analyses using model 7 in the PROCESS extension to SPSS (Hayes, 2012) to test whether the indirect effect of financial stress on mental health symptoms, paranoia (Model A), depression (Model B), and anxiety (Model C) through self-esteem was moderated by neighborhood identity (see Figure 1). Indirect effects were calculated via bootstrapping with 1,000 resamples and are reported at +/− 1 SD of neighborhood identity. Confidence intervals for the index of moderated mediation (IMM) did not cross zero for all three mental health symptoms. Inspection of the coefficients revealed that the positive indirect effect of financial stress on mental health via self-esteem was attenuated at high levels of neighborhood identification.

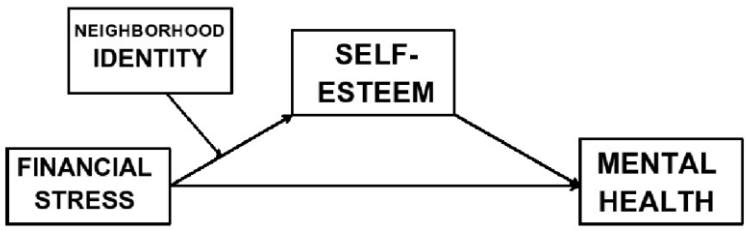


FIGURE 1. Conceptual Model of Moderated Mediation Effect in Study 1.

TABLE 1. Unstandardized Direct and Indirect Effects between Financial Stress, Self-Esteem, and Mental Health Symptoms at Low (−1 *SD*) and High (+1 *SD*) Neighborhood Identity in Study 1.

			B	*(S.E.)*	*(95% CI)*
Model A: Paranoia					
Path a					
Self-esteem	On	Financial stress	-1.01***	.16	-1.33, -.69
		Neighborhood ID	-.12	.10	-.32, .08
		Sex	-.13*	.05	-.23, -.03
		Ethnicity	.12**	.04	.04, .19
		Age	-.07***	.01	-.09, -.04
		Deprivation	.16***	.03	.09, .22
		Financial Stress X Neighbourhood ID	.14**	.05	.05, .24
Path b					
Paranoia	On	Self-esteem	-.13***	.01	-.14, -.11
Path c					
Paranoia	On	Financial stress	.30***	.02	.26, .35
		Sex	-.05*	.03	-.10, -.01
		Ethnicity	-.02	.02	-.05, .02
		Age	-.03***	.01	-.04, -.01
		Deprivation	-.08***	.02	-.11, -.04
Bootstrapped indirect effect at ***low*** Neighborhood ID Financial stress → Self-esteem → Paranoia			.09*	.01	.07, .11
Bootstrapped indirect effect at ***high*** Neighborhood ID Financial stress → Self-esteem → Paranoia			.06*	.01	.04, .07
Index of moderated mediation			-.02*	.01	-.03, -.005
Model B: Depression					
Path a					
Self-esteem	On	Financial stress	-1.00***	.16	-1.32, -.68
		Neighborhood ID	-.12	.10	-.32, .09
		Sex	-.13*	.05	-.23, -.02
		Ethnicity	.11**	.04	.04, .19
		Age	-.07***	.01	-.09, -.04
		Deprivation	.16***	.03	.09, .22
		Financial Stress X Neighbourhood ID	.13**	.05	.04, .24
Path b					
Depression	On	Self-esteem	-.10***	.01	-.11, -.09
Path c					
Depression	On	Financial stress	.26***	.02	.23, .29
		Sex	-.02	.02	-.06, .02
		Ethnicity	-.06***	.01	-.09, -.04
		Age	-.03***	.005	-.04, -.02
		Deprivation	-.05***	.01	-.07, -.03
Bootstrapped indirect effect at ***low*** Neighborhood ID Financial stress → Self-esteem → Depression			.07*	.01	.05, .09
Bootstrapped indirect effect at ***high*** Neighborhood ID Financial stress → Self-esteem → Depression			.05*	.01	.03, .06
Index of moderated mediation			-.01*	.006	-.02, -.004
Model C: Anxiety					
Path a					
Self-esteem	On	Financial stress	-1.00***	.16	-1.31, -.68
		Neighborhood ID	-.11	.10	-.32, .09
		Sex	-.13*	.05	-.23, -.02
		Ethnicity	.12**	.04	.04, .19
		Age	-.07***	.01	-.10, -.04
		Deprivation	.16***	.03	.09, .22
		Financial Stress X Neighbourhood ID	.14**	.05	.04, .24
Path b					
Anxiety	On	Self-esteem	-.12***	.01	-.13 -.11
Path c					
Anxiety	On	Financial stress	.28***	.02	.25, .31
		Sex	.02	.02	-.02, .06
		Ethnicity	-.08***	.01	-.11, -.06
		Age	-.04***	.01	-.05, -.03
		Deprivation	-.03*	.01	-.06, -.01
Bootstrapped indirect effect at ***low*** Neighborhood ID Financial stress → Self-esteem → Anxiety			.08*	.01	.07, .10
Bootstrapped indirect effect at ***high*** Neighborhood ID Financial stress → Self-esteem → Anxiety			.05*	.01	.04, .07
Index of moderated mediation			-.02*	.01	-.03, -.005

Note. $*p < .05$; $**p < .01$; $***p < .001$.

STUDY 2 BACKGROUND

Study 1 found that the mediated effect of financial stress on mental health symptoms through self-esteem was significantly reduced, although not completely eliminated, when individuals from a general population sample identified strongly with their neighborhoods.

People typically move between neighborhoods during their lifetimes, and this may present challenges to neighborhood identification. We therefore sought to study this effect in university students, a group that are particularly vulnerable to mental health issues (see Storrie, Ahern, & Tuckett, 2010). In the UK, students typically move some distance away from home to study and it has been observed that, when students make this transition, it may take them some time to establish their identity in their new environment (Iyer et al., 2009; Praharso, Tear, & Cruwys, 2017). However, according to the Social Identity Model of Identity Change (SIMIC; Jetten & Pachana, 2012), the potential negative impact of life transitions on health and well-being can be attenuated by positive social relationships. We, therefore, tested whether new (or host town) identities were more protective than hometown identities against the adverse effects of financial stress after the major life transition of starting university.

STUDY 2 DATA AND METHODS

PARTICIPANTS

A total of 612 students attending university in Northern England and Wales completed the survey online. Women comprised 64% of the sample and the age of respondents ranged from 17 to 53 years (M = 21.61, SD = 3.65); 14% of the sample identified as black or belonging to another minority ethnic group. All participants who completed the survey were entered into a prize draw to win a gift voucher.

MEASURES

Financial Stress. The Debt Worry Scale (Cooke, Barkham, Audin, Bradley, & Davy, 2004) consists of two items: "Are financial concerns a current issue?" and "To what extent does your debt worry you?" Participants responded on a five-point scale ranging from 1 (not at all) to 5 (a lot). The two items were highly correlated r (552) = .74.

Hometown and Host Town Identity. Participants responded to three items for each identity. The first two were derived from Doosje, Ellemers, and Spears (1995): "I identify with [host town/hometown]" and "I feel strong ties with [host town/ hometown]". The third item was taken from Study 1 and involved group belonging "I feel a sense of belonging to [host town/hometown]." Host town was defined as the town or city where participants currently attended university. Hometown was defined as the town or city where participants had spent "the majority of your life". Both host town identity (α = .91) and hometown identity (α = .92) showed high internal consistency.

Self-Esteem. The Brief Core Schema Scale (Fowler et al., 2006) assesses positive and negative attitudes about the self and others. This scale is designed to be used with

healthy participants and patients with psychosis. It has been used in many studies assessing beliefs about the self and others (e.g. Wearden, Peters, Berry, Barrowclough, & Liversidge, 2008). We limited our analyses to the twelve self-relevant items, which included six positive descriptors (e.g. "I am respected") and six negative descriptors (e.g. "I am weak"). Participants responded on a five-point scale ranging from 0 (do not believe) to 4 (believe it totally), $\alpha = .91$.

Mental Health. Participants completed the same depression ($\alpha = .87$), anxiety ($\alpha = .90$) and paranoia ($\alpha = .80$) scales reported in Study 1.

Demographic Variables. Demographic control variables were consistent with Study 1 with the exception of age which was measured continuously in years rather than in age bands. We also coded whether participants attended university in a different town to the place they reported as their hometown (0 = same town, 1 = different town).

STUDY 2 RESULTS

PRELIMINARY ANALYSES

Means, standard deviations, and zero-order correlations are reported in Supplementary Table 2 (Appendix B). Of note, 455 (74%) of the 612 participants indicated that they attended university in a different town to their hometown. Correlation analyses indicated that financial stress was associated with lower self-esteem and higher scores on all three mental health symptoms.

Higher financial stress was also associated with weaker hometown identity but was unrelated to host town identity. Both host town and hometown identities were associated with higher self-esteem and lower paranoia and depression. However, both types of identity were unrelated to anxiety. As in Study 1, paranoia was moderately associated with higher depression and anxiety. Depression and anxiety were highly positively correlated and higher self-esteem was associated with lower scores on all three mental health measures.

MODERATED MEDIATION ANALYSES

We conducted twelve moderated mediation analyses (4 identity combinations × 3 symptoms) to test whether the indirect effect of financial stress on mental health symptoms (paranoia, depression and anxiety) through self-esteem was moderated by specific combinations of host town and hometown neighborhood identity (see Figure 2). We used model 9 of the PROCESS extension in SPSS (Hayes, 2012). This model allows the assessment of conditional indirect effects at different levels of two moderators (mods) entered simultaneously (i.e. indirect effects at: low mod1/low mod2, low mod1/high mod2, high mod1/low mod2, and high mod1/high mod2). As in Study 1, indirect effects were calculated via bootstrapping with 1,000 resamples and are reported at low (−1 SD) and high (+1 SD) levels of host town and hometown identity. Age, sex, ethnicity (white/BME) and whether participants did or did not attend university in their hometown were included in the models as covariates.

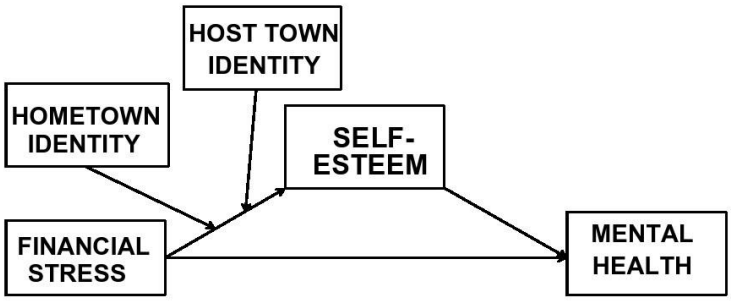


FIGURE 2. Conceptual Model of Moderated Mediation Effect in Study 2.

As shown in Table 2, results indicated that the mediated effect of financial stress on all three symptoms through self-esteem was significant when host town identity was low, irrespective of hometown identification levels. However, there was no effect of financial stress on mental health symptoms via self-esteem when host town identity was high, irrespective of hometown identity levels. The strongest effect of financial stress on mental health was observed when there was a combination of low host town identity and high hometown identity. It should be noted that we reran these analyses excluding people who reported the same hometown and host town, rather than controlling for this variable. This did not affect the significance or the relative strengths of the effects. That is, the strongest mediated effect remained at low host town/high hometown neighborhood identity for all three mental health symptoms.

TABLE 2. Unstandardized Indirect Effects between Financial Stress, Self-Esteem, and Mental Health Symptoms at Low (−1 SD) and High (+1 SD) Identity (ID) in Study 2.

	B	(SE)	(95% CI)
Indirect effect at ***low host town ID*** and ***low hometown ID***			
Financial stress → Self-esteem → Paranoia	.21*	.09	.04, .39
Financial stress → Self-esteem → Depression	.30*	.12	.06, .56
Financial stress → Self-esteem → Anxiety	.22*	.09	.05, .41
Indirect effect at ***low host town ID*** and ***high hometown ID***			
Financial stress → Self-esteem → Paranoia	.34*	.10	.16, .54
Financial stress → Self-esteem → Depression	.49*	.14	.23, .77
Financial stress → Self-esteem → Anxiety	.35*	.10	.16, .55
Indirect effect at ***high host town ID*** and ***low hometown ID***			
Financial stress → Self-esteem → Paranoia	.02	.10	−.18, .20
Financial stress → Self-esteem → Depression	.02	.14	−.25, .29
Financial stress → Self-esteem → Anxiety	.02	.10	−.18, .20
Indirect effect at ***high host town ID*** and ***high hometown ID***			
Financial stress → Self-esteem → Paranoia	.14	.08	−.01, .32
Financial stress → Self-esteem → Depression	.21	.12	−.02, .44
Financial stress → Self-esteem → Anxiety	.15	.09	−.01, .33

Note. *95% CIs do not include zero.

DISCUSSION

In two studies we tested the hypothesis that social identification attenuates the negative effects of financial stress on self-esteem and subsequent mental health. In Study 1, we analyzed data from a large sample of UK residents and found that the mediated effect of financial stress on mental health symptoms through self-esteem was attenuated at high levels of neighborhood identification. In Study 2, we assessed data from a student mental health survey conducted in universities in England and Wales. Results showed that the mediated effect of financial stress on mental health symptoms via self-esteem was no longer present when people identified highly with their town of residence, but not when they identified highly with their hometown neighborhood. The results also provided suggestive evidence that possessing a strong hometown identity may even be harmful when combined with low host town identity. Overall, the findings indicate that feeling identified with the place where you live protects against the harmful effects of financial stress on mental health. However, hometown identification has no protective value, and may even be harmful in this context. Therefore, while social identity is an important determinant of mental health, not all identities are equal. Indeed, identities associated with one's current neighborhood or town loom large in terms of fortifying people against poor mental health in times of financial struggle.

Our findings support previous research that has suggested social identification increases self-esteem and improves mental health (Haslam, Jetten, & Waghorn, 2009; Haslam, Cruwys, Haslam, Dingle, & Chang, 2016). The SIMIC model is also supported in its implication that social groups help individuals to develop a sense of purpose and self-worth during life transitions, such as moving to a new town to attend university. It is well known that psychological symptoms are more apparent in individuals with low self-esteem and, in line with past research, we found that low self-esteem was associated with anxiety and depression (Fowler et al., 2011; Roberts et al., 1996), as well as paranoia (Fowler et al., 2011; Thewissen et al., 2008; Wickham et al., 2015), in both general population and student samples.

It has been argued that groups provide their members with purpose and meaning (Dingle et al., 2013; Haslam, Jetten, Postmes, & Haslam, 2009). However, as this study highlights, although hometown neighborhood identities are valued and may, on the surface, seem important and meaningful, they do not appear to be relevant to mental health once a person has moved away from home. This finding appears to conflict with a model of immigrant mental health that categorizes the process of acculturation (adopting a new culture) into four outcomes based on identification with culture of origin and host culture, two of which are particularly relevant to our research (Berry, 1997). Specifically, Integration occurs when immigrants embrace their new culture while also maintaining their birth culture; Assimilation, on the other hand, refers to the process of embracing a new culture while de-identifying with one's original culture. This model suggests that the most positive mental health outcomes will be evident among people who integrated rather than assimilated (i.e. maintained strong identities with both host town and hometown) whereas, in our study, assimilation had the best outcome. However, it is important to note that our study did not specifically assess international migrants or cultural identities; nor did we attempt to assess the extent to which the identities were consistent or in conflict with each other. It is also possible that the relative effects of the two types of identity will depend on the type of stressor experienced. For example, financial concerns may particularly impact on people's capacity to participate as a full member of a community (Sen, 1997). Further research is required to determine under which circumstances the two acculturation strategies have the best outcomes among migrant populations.

A limitation of the present work is that due to using two pre-existing datasets designed to address varying research questions, the identities measured across studies were not identical. Specifically, neighborhoods, as measured in Study 1, are geographically smaller than towns, which were assessed in Study 2. Another limitation is the reliance on single-item measures, for example, self-esteem, and identity in Study 1. However, it should also be noted that the self-esteem item has been validated against longer scales and that there was high convergence between the studies. The current cross-sectional studies also only provide a snapshot of the relationships between financial stress, self-esteem, social identity, and mental health. A longitudinal design would provide a better understanding of the importance of identities in disrupting the pathway from financial stress to low self-esteem and mental health problems. Moreover, while it would be unethical to experimentally

manipulate most mental health symptoms, it would be informative to manipulate mild financial stress and examine whether more salient social identities influence the effects of financial stress on social trust and affect, as proxies for mental health symptoms.

It would also be beneficial to carry out further studies assessing whether other types of stress affect mental health symptoms but are attenuated by strong social identification and also whether different psychological mediating mechanisms (e.g. hopelessness, locus of control) are implicated. As noted in past work, stressful life events such as discrimination and rejection due to sexuality, race, or religion are associated with poor mental health outcomes (Meyer, 2003; Williams et al., 1997). Our finding that host town identities are critical to alleviating mental health symptoms during times of stress may lead to novel interventions that aim to improve mental health by promoting psychological resilience. This may be achieved by fostering strong ties between vulnerable individuals and their local neighborhoods.

In sum, our studies found that financial stress takes a severe toll on people's psychological health and self-esteem. Further, the results supported the notion that identifying with one's local area is protective against mental health symptoms, and demonstrated that the effect did not extend to hometown identities. The results highlight the importance of community cohesion in improving mental health, and provide further understanding about how different combinations of identity impact on mental health symptoms.

APPENDIX A Table 1. *Descriptive statistics and bivariate correlations between variables in Study 1.*

Variable	*M*	*SD*	1	2	3	4	5	6
1. Financial stress	1.88	.59	-	.04	.22***	.27***	.31***	.32***
2. Self-esteem	4.54	1.73	-	-	.10***	-.30***	-.33***	-.35***
3. Neighbourhood identity	3.16	.83	-	-	-	.14***	-.15***	-.15***
4. Paranoia	1.95	.87	-	-	-	-	.50***	.56***
5. Depression	1.52	.65	-	-	-	-	-	.79***
6. Anxiety	1.50	.71	-	-	-	-	-	-

* $p < .05$, ** $p < .01$, *** $p < .001$

APPENDIX B Table 2. *Descriptive statistics and bivariate correlations between the variables in Study 2.*

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. Financial stress	5.61	2.45	-	.04	-.13**	-.10*	.14**	.28***	.24***
2. Host town identity	14.52	4.30	-	-	.12**	.19***	-.16**	-.14**	-.08
3. Hometown identity	14.92	5.01	-	-	-	.15**	-.16**	-.13**	-.07
4. Self-esteem	16.79	5.24	-	-	-	-	-.42***	-.52***	-.37***
5. Paranoia	12.95	5.10	-	-	-	-	-	.53***	.51***
6. Depression	19.14	6.30	-	-	-	-	-	-	.74***
7. Anxiety	15.51	5.79	-	-	-	-	-	-	-

* $p < .05$, ** $p < .01$, *** $p < .001$

REFERENCES

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497.

Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology*, *46*, 5–34.

Block, J., & Robins, R. W. (1993). A longitudinal study of consistency and change in self-esteem from early adolescence to early adulthood. *Child Development*, *64*, 909–923.

Brandmeir, K., Grimm, M., Heise, M., & Holzhausen, A. (2015). *Global Wealth Report 2015*. Allianz Public Policy & Economic Research, Munich

Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimination among African Americans: Implications for group identification and well-being. *Journal of Personality and Social Psychology*, *77*, 135.

Ciarrochi, J., Deane, F. P., & Anderson, S. (2002). Emotional intelligence moderates the relationship between stress and mental health. *Personality and Individual Differences*, *32*, 197–209.

Community Life Survey 2014 To 2015: Data - GOV.UK. (2015). Retrieved 13 October 2017, from https://www.gov.uk/government/publications/community-life-survey-2014-to-2015-data

Cooke, R., Barkham, M., Audin, K., Bradley, M., & Davy, J. (2004). Student debt and its relation to student mental health. *Journal of Further and Higher Education*, *28*, 53–66.

Crocker, J., & Luhtanen, R. K. (2003). Level of self-esteem and contingencies of self-worth: Unique effects on academic, social, and financial problems in college students. *Personality and Social Psychology Bulletin*, *29*, 701–712.

Cruwys, T., Dingle, G. A., Haslam, C., Haslam, S. A., Jetten, J., & Morton, T. A. (2013). Social group memberships protect against future depression, alleviate depression symptoms and prevent depression relapse. *Social Science & Medicine*, *98*, 179–186.

Cruwys, T., Haslam, S. A., Dingle, G. A., Haslam, C., & Jetten, J. (2014). Depression and social identity: An integrative review. *Personality and Social Psychology Review*, *18*, 215–238.

Diener, E., & Diener, M. (1995). Cross-cultural correlates of life satisfaction and self-esteem. *Journal of Personality and Social Psychology*, *68*, 653–663.

Dingle, G. A., Brander, C., Ballantyne, J., & Baker, F. A. (2013). 'To be heard': The social and mental health benefits of choir singing for disadvantaged adults. *Psychology of Music*, *41*, 405–421.

Doosje, B., Ellemers, N., & Spears, R. (1995). Perceived intragroup variability as a function of group status and identification. *Journal of Experimental Social Psychology*, *31*, 410–436.

Dwyer, R. E., McCloud, L., & Hodson, R. (2011). Youth debt, mastery, and self-esteem: Class-stratified effects of indebtedness on self-concept. *Social Science Research*, *40*, 727–741.

Ellemers, N., Kortekaas, P., & Ouwerkerk, J. W. (1999). Self-categorization, commitment to the group and social self-esteem as related but distinct aspects of social identity. *European Journal of Social Psychology*, *29*, 371–389.

Fowler, D., Freeman, D., Smith, B.E.N., Kuipers, E., Bebbington, P., Bashforth, H., . . . Garety, P. (2006). The Brief Core Schema Scales (BCSS): Psychometric properties and associations with paranoia and grandiosity in non-clinical and psychosis samples. *Psychological Medicine*, *36*, 749–759.

Fowler, D., Hodgekins, J., Garety, P., Freeman, D., Kuipers, E., Dunn, G., . . . Bebbington, P. E. (2011). Negative cognition, depressed mood, and paranoia: A longitudinal pathway analysis using structural equation modeling. *Schizophrenia Bulletin*, *38*, 1063–1073.

Harter, S. (1990). *Self and identity development*. Cambridge, MA: Harvard University

Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G., & Chang, M.X.L. (2016). Groups 4 health: Evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of Affective Disorders*, *194*, 188–195.

Haslam, C., Cruwys, T., Milne, M., Kan, C. H., & Haslam, S. A. (2016). Group ties protect cognitive health by promoting social identification and social support. *Journal of Aging and Health*, *28*, 244–266.

Haslam, S. A., Jetten, J., Postmes, T., & Haslam, C. (2009). Social identity, health and well-being: An emerging agenda for applied psychology. *Applied Psychology*, *58*, 1–23.

Haslam, S. A., Jetten, J., & Waghorn, C. (2009). Social identification, stress and citizenship in teams: A five-phase longitudinal study. *Stress and Health*, *25*, 21–30.

Haslam, S. A., O'brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British Journal of Social Psychology*, *44*, 355–370.

Hayes, A. F. (2012). *PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling* [White paper]. Retrieved from http://www.afhayes.com/public/process2012.pdf

Hovey, J. D., & King, C. A. (1996). Acculturative stress, depression, and suicidal ideation among immigrant and second-generation Latino adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, *35*, 1183–1192.

Iyer, A., Jetten, J., Tsivrikos, D., Postmes, T., & Haslam, S. A. (2009). The more (and the more compatible) the merrier: Multiple group memberships and identity compatibility as predictors of adjustment after life transitions. *British Journal of Social Psychology*, *48*, 707–733.

Jetten, J., Branscombe, N. R., Haslam, S. A., Haslam, C., Cruwys, T., Jones, J. M., . . . Thai, A. (2015). Having a lot of a good thing: Multiple important group memberships as a source of self-esteem. *PloS One*, *10*, e0124609.

Jetten, J., & Pachana, N. (2012). Not wanting to grow old: A Social Identity Model of Identity Change (SIMIC) analysis of driving cessation among older adults. In J. Jetten, C. Haslam, & A. Haslam (Eds.), *The social cure: Identity, health and well-being* (pp. 97-113). New York: The Psychology Press.

Krause, N., Jay, G., & Liang, J. (1991). Financial strain and psychological well-being among the American and Japanese elderly. *Psychology and Aging, 6*, 170.

Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: A new depression diagnostic and severity measure. *Psychiatric Annals, 32*, 509–515.

Lazarus, R. S., & Folkman, S. (1984*). Stress, appraisal, and coping.* New York: Springer.

Linn, M. W., Sandifer, R., & Stein, S. (1985). Effects of unemployment on mental and physical health. *American Journal of Public Health, 75*, 502–506.

Luhtanen, R., & Crocker, J. (1992). A collective self-esteem scale: Self-evaluation of one's social identity. *Personality and Social Psychology Bulletin, 18*, 302–318.

Lund, C., Breen, A., Flisher, A. J., Kakuma, R., Corrigall, J., Joska, J. A., . . . Patel, V. (2010). Poverty and common mental disorders in low and middle income countries: A systematic review. *Social Science & Medicine, 71*, 517–528.

Mayhew, K. P., & Lempers, J. D. (1998). The relation among financial strain, parenting, parent self-esteem, and adolescent self-esteem. *The Journal of Early Adolescence, 18*, 145–172.

McIntyre, J. C., Wickham, S., Barr, B., & Bentall, R. P. (2017). social identity and psychosis: Associations and psychological mechanisms. *Schizophrenia Bulletin, 44*(3), 681-690.

Melo, S., Corcoran, R., Shryane, N., & Bentall, R. P. (2009). The persecution and deservedness scale. *Psychology and Psychotherapy: Theory, Research and Practice, 82*, 247–260.

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychological Bulletin, 129*, 674.

Office for National Statistics. Social Survey Division. (2016). *Wealth and Assets Survey, Waves 1-4, 2006-2014: Secure Access* [data collection]. 3rd Edition. UK Data Service. SN: 6709, http://doi.org/10.5255/UKDA-SN-6709-3

Pinto, M. B., Mansfield, P. M., & Parente, D. H. (2004). Relationship of credit attitude and debt to self-esteem and locus of control in college-age consumers. *Psychological Reports, 94*, S1405–S1418.

Praharso, N. F., Tear, M. J., & Cruwys, T. (2017). Stressful life transitions and wellbeing: A comparison of the stress buffering hypothesis and the social identity model of identity change. *Psychiatry Research, 247*, 265–275.

Richardson, T., Elliott, P., & Roberts, R. (2013). The relationship between personal unsecured debt and mental and physical health: A systematic review and meta-analysis. *Clinical Psychology Review, 33*, 1148–1162.

Roberts, J. E., Gotlib, I. H., & Kassel, J. D. (1996). Adult attachment security and symptoms of depression: The mediating roles of dysfunctional attitudes and low self-esteem. *Journal of Personality and Social Psychology, 70*, 310-320.

Robins, R. W., Hendin, H. M., & Trzesniewski, K. H. (2001). Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin, 27*, 151–161.

Rosenberg, M., Schooler, C., Schoenbach, C., & Rosenberg, F. (1995). Global self-esteem and specific self-esteem: Different concepts, different outcomes. *American Sociological Review, 60*, 141–156.

Sani, F., Wakefield, J. R., Herrera, M., & Zeybek, A. (2017). On the association between greater family identification and lower paranoid ideation among non-clinical individuals: Evidence from Cypriot and Spanish students. *Journal of Social and Clinical Psychology*, *36*, 396–418.

Sellers, R. M., Smith, M. A., Shelton, J. N., Rowley, S. A., & Chavous, T. M. (1998). Multidimensional model of racial identity: A reconceptualization of African American racial identity. *Personality and Social Psychology Review*, *2*, 18–39.

Sen, A. (1997). *Choice, welfare and measurement*. Cambridge, MA: Harvard University Press.

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of Internal Medicine*, *166*, 1092–1097.

Storrie, K., Ahern, K., & Tuckett, A. (2010). A systematic review: Students with mental health problems—a growing problem. *International Journal of Nursing Practice*, *16*, 1–6.

Tajfel, H. (1972). *Experiments in a vacuum*. London: Academic Press.

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *The Social Psychology of Intergroup Relations*, *33*, 74.

Thewissen, V., Bentall, R. P., Lecomte, T., van Os, J., & Myin-Germeys, I. (2008). Fluctuations in self-esteem and paranoia in the context of daily life. *Journal of Abnormal Psychology*, *117*, 143.

Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R., & Caspi, A. (2006). Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood. *Developmental Psychology*, *42*, 381.

Wearden, A., Peters, I., Berry, K., Barrowclough, C., & Liversidge, T. (2008). Adult attachment, parenting experiences, and core beliefs about self and others. *Personality and Individual Differences*, *44*, 1246–1257.

Wickham, S., Sitko, K., & Bentall, R. P. (2015). Insecure attachment is associated with paranoia but not hallucinations in psychotic patients: The mediating role of negative self-esteem. *Psychological Medicine*, *45*, 1495–1507.

Wilburn, V. R., & Smith, D. E. (2005). Stress, self-esteem, and suicidal ideation in late adolescents. *Adolescence*, *40*, 33.

Williams, D. R., Yu, Y., Jackson, J. S., & Anderson, N. B. (1997). Racial differences in physical and mental health: Socio-economic status, stress and discrimination. *Journal of Health Psychology*, *2*, 335–351.

Appendix D: Approval Letter for Chapter 7

1 November 2017
Health and Life Sciences Research Ethics Committee (Psychology, Health and Society)

Dear Dr McIntyre,

I am pleased to inform you that your application for research ethics approval has been approved. Application details and conditions of approval can be found below. Appendix A contains a list of documents approved by the Committee.

Application Details

Reference: 2047

Project Title: Social interactions and mental health among people from African Caribbean backgrounds

Principle Investigator/Supervisor: Dr Jason McIntyre

Co-Investigator(s): Dr Ross White, Prof Richard Bentall, Miss Anam Elahi

Lead Student Investigator: -

Department: Health Services Research

Approval Date: 01/11/2017

Approval Expiry Date: Five years from the approval date listed above

The application was **APPROVED** subject to the following conditions:

Conditions of approval

- All serious adverse events must be reported via the Research Integrity and Ethics Team (ethics@liverpool.ac.uk) within 24 hours of their occurrence.
- If you wish to extend the duration of the study beyond the research ethics approval expiry date listed above, a new application should be submitted.
- If you wish to make an amendment to the research, please create and submit an amendment form using the research ethics system.
- If the named Principal Investigator or Supervisor leaves the employment of the University during the course of this approval, the approval will lapse. Therefore, it will be necessary to create and submit an amendment form using the research ethics system.
- It is the responsibility of the Principal Investigator/Supervisor to inform all investigators of the terms of approval.

Kind regards,

Central University Research Ethics Committee (Psychology, Health and Society)

iphsrec@liverpool.ac.uk

0151 795 5420

Appendix-Approved Documents

(Relevant only to amendments involving changes to the study documentation)

The final document set reviewed and approved by the committee is listed below:

Document Type	File Name	Date	Version
Advertisement	Debrief_mod2		
Research Tools	Debrief_mod2		
Advertisement	Advertisement_mod2		
Questionnaire	African-Caribbean_Identity_MH_Survey2a	05/06/2017	1

Appendix E: Participant Information Sheet for Chapter 7

Participant Information Sheet Version 1.0
06/03/18

Title of study: Social interactions and Mental Health among people from African-Caribbean backgrounds.

You are being invited to participate in a research study. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask us if you would like more information or if there is anything that you do not understand. Please feel free to discuss this with your friends, relative and GP if you wish. We would like to stress that you do not have to accept this invitation and you should only agree to take part if you want to. Thank you for reading this.

What is the purpose of this study?

This study is exploring the effects of social interactions on mental health. We will ask you questions about your mental health as well as your social experiences with other people.

Why have I been chosen to take part?

You have been chosen to take part because we are interested in the experience of people from African-Caribbean background living in Britain. We hope that approximately 350 people will complete this survey.

Do I have to take part?

Participation in this study is voluntary and you are free to withdraw at any time, without explanation, and without incurring disadvantage.

What will happen if I take part?

If you decide to take part, you will be asked a series of questions regarding your social networks, experiences of discrimination, mental health and basic demographic information. The survey should take about 20 minutes to complete.

Contact Details

If you would like further information about this study or have any questions, please do not hesitate to contact:

Dr Jason McIntyre: j.mcintyre@liverpool.ac.uk

Phone: +44 (0) 151 794 5613

Institute of Psychology, Health and Society, University of Liverpool, Waterhouse Block B, Liverpool, L69 3GL.

Are there any risks to taking part?

Taking part involves thinking about emotional issues and stressful events which could be distressing. For some questions, there is an option to respond, 'prefer not to say'. If you find the questions distressing, you can stop at any point. If you experience any distress during or after completing the survey, you should contact The Samaritans (phone: 08457 90 90 90, 24 hours) or your local GP. We also encourage you to contact Dr Jason McIntyre (j.mcintyre@liverpool.ac.uk) to notify the team of any adverse reactions to the survey.

Are there any benefits in taking part?

The benefits to participants include advancing our understanding of mental health issues and their causes in the African-Caribbean community. This research will also be used to inform interventions and policies that directly improve mental health in ethnic minority communities.

What if I am unhappy or there is a problem?

If you are unhappy, or if there is a problem, please feel free to let us know by contacting Dr Jason McIntyre (j.mcintyre@liverpool.ac.uk) and we will try to help. If you remain unhappy or have a complaint which you feel you cannot come to us with then you should contact the Research Ethics and Integrity Office at ethnic@liv.ac.uk. When contacting the Research Ethics and Integrity Office, please provide details of the name or description of the study (so that it can be identified), the researcher(s) involved and the details of the complaint you wish to make.

Will my participation be kept confidential?

Your participation is entirely confidential, with your data only being accessible to the researchers. We will store your data anonymously under an ID code, so you are not identifiable. We will ask you if you would like to provide the first two digits of your postcode. This question is optional and postcode data will not be made available to the public.

Who can I contact if I have further questions?

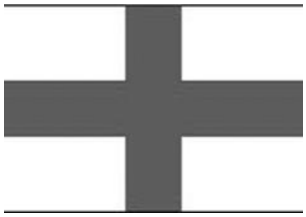
Dr Jason McIntyre: j.mcintyre@liverpool.ac.uk

Phone: +44 (0)151 793 5613

Institute of Psychology, Health and Society, University of Liverpool, Waterhouse Block B, Liverpool, L69 3GL.

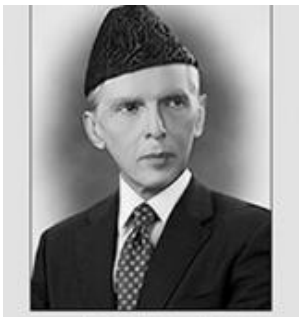
Thank you for taking the time read this information sheet.

Appendix F: Pictures that represent English and Pakistani identities (used in Chapter 9)




PIA


Gilgit
K.P.
AJK
ICT
LHR
Punjab
Balochistan
Sindh




DING DONG


One Nation, One Passion, Green team and a dream

Appendix G: Approval Letter for Chapter 9

22 March 2018 Central University Research Ethics Committee A

Dear Dr White,

I am pleased to inform you that your application for research ethics approval has been approved. Application details and conditions of approval can be found below. Appendix A contains a list of documents approved by the Committee.

Application Details

Reference: 1898

Project Title: Ethnic identity and mental health

Principle Investigator/Supervisor: Dr Ross White

Co-Investigator(s): Miss Anam Elahi, Dr Jason McIntyre

Lead Student Investigator -

Department: Psychological Sciences

Approval Date: 22/03/2018

Approval Expiry Date: Five years from the approval date listed above

The application was **APPROVED** subject to the following conditions:

Conditions of approval

- All serious adverse events must be reported via the Research Integrity and Ethics Team (ethics@liverpool.ac.uk) within 24 hours of their occurrence.
- If you wish to extend the duration of the study beyond the research ethics approval expiry date listed above, a new application should be submitted.
- If you wish to make an amendment to the research, please create and submit an amendment form using the research ethics system.
- If the named Principal Investigator or Supervisor leaves the employment of the University during the course of this approval, the approval will lapse. Therefore, it will be necessary to create and submit an amendment form using the research ethics system.
- It is the responsibility of the Principal Investigator/Supervisor to inform all investigators of the terms of approval.

Kind regards,

Central University Research Ethics Committee A

ethics@liverpool.ac.uk

CURECA

Appendix-Approved Documents

(Relevant only to amendments involving changes to the study documentation)

The final document set reviewed and approved by the committee is listed below:

Document Type	File Name	Date	Version
Research Tools	English Identity pics chosen		
Research Tools	Pakistani Identity pics chosen		
Research Tools	First email to and from Ruth		
Questionnaire	Current mental health		
Questionnaire	Demographic questions		
Questionnaire	Discrimination items		
Questionnaire	Launay Slade Hallucinations Scale		
Questionnaire	Patient Health Questionnaires		
Questionnaire	Persecution and Deservedness Scale		
Questionnaire	Wellbeing Index (WHO-5)		
Research Tools	Louise's confirmation of questionnaires		
Questionnaire	Four-Item measure of Social identification		
Participant Information Sheet	Participant Information Sheet v4	06/03/2018	4
Study Proposal Protocol	Protocol v3	06/03/2018	3
Participant Consent Form	Consent Form v4	06/03/2018	4
Research Tools	Debrief v4	06/03/2018	4

Appendix H: Participant Information Sheet for Chapter 9

Participant Information Sheet Version 4.0
06/03/18

Title of study: The Effects of Ethnic Identity on Mental Health in British Students.

We would like to invite you to take part in a research study. Before you decide whether to participate, it is important for you to understand why the research is being carried out and what it will involve. Please take time to read the following information carefully. If there is anything that is not clear or if you would like more information, please get in touch using the contact details provided below.

Who is conducting the study?

The study is being conducted by Anam Elahi, 3rd year PhD student at the University of Liverpool. Associate Professor Justin Thomas, a researcher from Zayed University (Dubai) will be assisting with the methodology. Overseeing the study will be Anam's supervisors (Professor Richard Bentall, Dr Jason McIntyre and Dr Ross White).

What is the purpose of this study?

All individuals have one or multiple ethnic identities. Research has indicated that strongly identifying with these identities can impact an individual's mental health symptoms. This study investigates whether having strong ethnic identification protects individuals from negative mental health outcomes.

Do I have to take part?

No. Taking part is entirely up to you. If you decide to participate, you are free to withdraw from the study at any time without explanation. Information provided up to the point of your withdrawal from the study may be used in the data analysis, if you are happy for this to be done. Otherwise you may request that all your information is destroyed, and no further use is made of it.

What is involved if I take part?

You will be asked to complete demographic questions. These include your age, your nationality at birth and your mother and father's nationality at birth. Next, the researches will ask you to complete an Affective Priming Task (ATP). This requires you to indicate whether a word is positive (e.g. "fun") or negative ("e.g. "pain") as quickly as possible. Before each word is presented, an image associated with either Pakistani (e.g. a Pakistan flag) or English identity (e.g. Big Ben) will briefly flash on the screen. Your reaction times in categorising these words as positive or negative will be recorded. For students that identify as being Pakistani, their English and Pakistani identities will be measured. For all other ethnic groups, students' English identity will be assessed. As all students are studying and living in England, they will have some form of English identity.

There will also be a single-item which asks you whether you are currently in contact with any mental health services. You will then also be asked to complete self-reported

measures of in-group identity using the Four-Item measure of Social Identification (FISI). This measures how strongly you identify with being English and any other ethnicity (if you are of dual ethnicity). An example of an item from the scale is: 'I feel a bond with other English people.' Potential answers range from 'Strongly Agree' to 'Strongly Disagree.' Several mental health symptoms will also be measured. The study will be addressing sensitive topics such as depression and anxiety.

Paranoia levels will be assessed using the revised 10- item Persecution and Deservedness Scale (PaDs). Depression will also be assessed using the Patient Health Questionnaire (PHQ). You will also complete a survey measuring hallucinations. This is the Launay Slade Hallucinations Scale (LSHS). You will also be asked to complete the Generalised Anxiety Disorder-7 (GAD-7) which measures levels of anxiety. You will then be asked to complete a two-item measure of perceived discrimination. The World Health Organisation (WHO-5) Well-Being

Index will also be administered. This will measure your general wellbeing. Finally, you will be asked to complete two-items which measure perceived discrimination.

All participants will be entered into a prize draw where four boys and four girls will win £25 in vouchers.

If I do decide to take part, what happens next?

If you do decide to take part in the study, the experimenter will first arrange for you to provide your informed consent to participate in the study. The consent form (version 4, Date: 06/03/2018) requires a signature to confirm that you have read the information about the study and agreed to take part. You will then undertake the research procedure as detailed above. You may contact Anam Elahi, at any time, if you need further information or guidance to support you through this process.

Will my results be kept confidential?

Yes. The information you provide will be kept confidential. The information you give us will be kept anonymous so that your name won't be attached to any questionnaires, instead a participant number will be assigned. Your name and any information that could identify you will not appear in any reports. The questionnaire responses will be stored securely and confidentially.

What are the possible risks of taking part?

As with all research involving human participants, the study does carry risks. The main risks for participants will be feelings of psychological distress and anxiety, particularly if they have had any mental health issues in the past. Hopefully these risks will be minimised as you will be informed that sensitive questions will be asked. You will also be given the right to withdraw their data at any time and do not have to participate. The participant information sheet and the debrief sheet provides details of organisations (below) that can help you. The organisations will allow you to remain anonymous if any distress does occur. You will also be given the researchers' details should you have any questions or require more information about the study. The researcher and a will be present when the data is being collected and they will assist you if you wish to withdraw. You may also speak to the college welfare team or your teachers if you have any problems.

Future research opportunities

If you are interested in being contacted for similar studies in the future, then we will ask you to provide us with your email address. The email address will be stored securely and separately from your questionnaire responses. Please note that you are free to decline if you do not want to take part in these other research opportunities – just as you are free to withdraw from this study at any time.

What will happen to the results of the study?

Once the study is completed we will produce a report that will describe the findings of the study. An academic paper summarising the study findings will be submitted for publication in an academic journal. The study will also be submitted by Anam Elahi as part of her thesis for her PhD in Psychology at the University of Liverpool. The report will not include any personal details of the people who took part.

Who is organising and funding the research?

The research is being organised by the University of Liverpool and funded by The National Institute of Health Research Collaboration for Leadership in Applied Health Research and Care North West Coast (NIHR CLAHRC NWC).

Who has reviewed the study?

The study has been reviewed by the University of Liverpool Research Ethics Committee to ensure that it meets standards of scientific conduct.

What can I do if I am unhappy with any aspect of my participation in the study?

We value the time you will take to participate in the study and will try to ensure you are comfortable with all aspects of your participation. If you have any concerns about the

study or the way it is conducted or if you want to complain about any aspect of this study, please contact the Principal Investigator, Dr Ross White, Institute of Psychology, Health and Society, G.10 Whelan Building, Quadrangle, University of Liverpool.

Who can I contact if I have further questions?

If you have any questions regarding the study or would like further information, please contact:
Anam Elahi (PhD Psychology Student, University of Liverpool)
hlaelahi@liverpool.ac.uk

Or the *academic supervisor*:
Dr Ross White (Reader in Clinical Psychology, University of Liverpool)
rgwhite@liverpool.ac.uk

Organisations *(the organisations below provide anonymous services)*

Anxiety UK
Tel: 08444 775 774
Text Service: 07537 416905
Email: support@anxietyuk.org.uk

Samaritans
Tel: 116 123
Find your local branch at: https://www.samaritans.org/branches

PAPYRUS (Prevention of Young Suicide)
Tel: 0800 068 41 41

Childline
Tel: 0800 1111